

NEW ENGLAND AND MID-ATLANTIC PERSPECTIVES ON MAGNUSON-STEVENSON ACT REAUTHORIZATION

HEARING

BEFORE THE

SUBCOMMITTEE ON OCEANS, ATMOSPHERE,
FISHERIES, AND COAST GUARD

OF THE

COMMITTEE ON COMMERCE,
SCIENCE, AND TRANSPORTATION
UNITED STATES SENATE

ONE HUNDRED THIRTEENTH CONGRESS

FIRST SESSION

JULY 23, 2013

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ONE HUNDRED THIRTEENTH CONGRESS

FIRST SESSION

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NEW ENGLAND AND MID-ATLANTIC PERSPECTIVES ON MAGNUSON-STEVEN'S ACT REAUTHORIZATION

TUESDAY, JULY 23, 2013

U.S. SENATE,
SUBCOMMITTEE ON OCEANS, ATMOSPHERE, FISHERIES,
AND COAST GUARD,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The Subcommittee met, pursuant to notice, at 10 a.m. in room SR-253, Russell Senate Office Building, Hon. Mark Begich, Chairman of the Subcommittee, presiding.

OPENING STATEMENT OF HON. MARK BEGICH, U.S. SENATOR FROM ALASKA

Senator BEGICH. Thank you for your patience. I know Senator Rubio is on his way and will be attending in moments. So thank you all very much for attending. Thank you for being patient as we start our continued efforts in regards to reauthorization of the Magnuson-Stevens Act.

Today, the Subcommittee on Oceans, Atmosphere, Fisheries, and Coast Guard begins a series of hearings that will occur over the next few months dealing with the reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act or MSA.

Today's hearing focuses on the New England and Mid-Atlantic regions. Future hearings will look at the South Atlantic, the Caribbean and Gulf Regions and the Pacific fisheries.

MSA was last reauthorized in the 109th Congress with the enactment of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006. This reauthorization act, which was signed into law by President Bush, authorized appropriations to carry out the provisions of MSA through Fiscal Year 2013.

The 2006 reauthorization also provided new management tools that ushered in sweeping changes to the way regional fisheries management councils and the National Marine Fisheries Service can serve and manage the fisheries of which their coastal communities and economies rely on.

Each council was required to incorporate mechanisms into its fisheries management plans specifying annual catch limits or ACLs and/or prevent overfishing. The 2006 reauthorization took a significant step toward science-based fisheries management by requiring each council to develop ACLs that do not exceed the recommendations of their science and statistical committee. It created a new

Marine Recreational Information program to improve upon the recreational fisheries statistical survey which had been place since the 1970s in order to better collect and report marine recreational catch and effort. It also created a National Saltwater Angler Registry to better quantify recreational fishing effort and improve recreational catch estimates.

The 2006 reauthorization also mandated the Secretary of Commerce, working with the regional councils and the Council on Environmental Quality, to come up with revised procedures and compliance with NEPA to streamline the review and approval of fishery management plans and plan amendments.

Today's hearing gives us a chance to hear from managers and stakeholders about how these and other aspects of MSA are working. We know that New England has had some success and some setbacks. The New England Council successfully implemented ACLs for all their fisheries and transitioned the ground fisheries to an output-based management model. Alaska has incorporated similar measures years ago. I'd like to boast a little bit about what we're doing up there. We produce over half the Nation's seafood while living "hard TACs" and various limited access regimes. For Alaska, this is a tried and true method for sustainable, efficient and safe fishery management.

While several valuable New England fisheries, including Atlantic sea scallops, monkfish and others are now being fished at sustainable levels, the lack of progress in rebuilding key species like cod and certain species of flounder in spite of everyone's best effort under the sector system has been a source of great frustration.

As with the New England Council and the Mid-Atlantic Council succeeding in bringing all its fishery management plans into compliance with the ACL requirements of MSA, as part of this effort, the Council incorporated a new framework across the fisheries' plans that is improving management consistency. The council also has taken a step toward forwarding cooperative research and management with the development of the Advisory Panel Fishery Performance reports. They give a fuller picture and broader basis for its fishery management advice and recommendations.

But these and other initiatives are only as strong as the data and stock assessments that form the core of fisheries conservation and management. The experience in the New England and Mid-Atlantic regions reaffirms what most of us already know: our biggest challenge in fisheries management is and will likely always be balancing the need of responsible stewardship of the resource for future generations with the needs of the individuals, businesses and communities who rely upon the resource today.

In closing, I want to note that in May of this year, I had the pleasure of speaking at the Managing Our Nation's Fisheries conference, which was convened here in Washington by the Regional Fishery Management Councils to discuss MSA reauthorization. I was heartened to hear that for most of the stakeholders there, whether they were representatives of commercial fishing interests, charter boat operators or recreational anglers, are largely pleased with MSA in its current form. That's not to say that they are completely happy with the status quo. Issues remain regarding managing data poor stocks, competing user interests and other issues,

but these can be dealt with minor adjustments to the law or administratively through rulemaking and changes in agency interpretation of the existing rules. I hear the same sentiment in Alaska and think that this bodes well for reauthorizing this important statute.

Before we start, I just want to make sure folks know, too, that we're going to take this process very systematically. I know the House is moving at a much faster pace when it comes to MSA. We want to hear, as I mentioned, from the different regions as we get their input. Alaska also has a unit component, subsistence harvesters, and we need to hear from the subsistence users as well. As we move through this, we will not just rush into making changes for the sake of meeting a deadline at the end of this year. We will do our best to process the information and then at the same time, prepare a new reauthorization that continues to move us forward in quality management of our resource.

Let me end there and I know, again, as soon as the Ranking Member appears, what we'll do, depending on where we are in the panel, I may midstream stop one of you—not your testimony, but before I go on to the next one—to have Senator Rubio make his comments and then we'll go back to the panel.

What I'd like to do is start off with John Bullard, Regional Administrator, Northeast Regional Office, National Marine Fisheries Service, National Oceanic and Atmospheric Administration. Thank you very much, John, for being here. I'll start with you and we'll just kind of go down the road here. John? It's always good to see you.

Mr. BULLARD. Do I push this?

Senator BEGICH. Yes. A light should come on.

Mr. BULLARD. There it is.

Senator BEGICH. Did it do it? Perfect.

Mr. BULLARD. Good morning, Mr. Chairman. My name is John Bullard. I'm the Northeast Regional Administrator for NOAA's National Marine Fisheries Service. It is my personal—oh, do you want to stop—

Senator BEGICH. Perfect. Perfect timing. No, I told him I would do that. He just said his name. So, John, thank you, I gave the pre-warning. Our timing was just right. Again, we'll pause here for a second, we'll give Senator Rubio—we appreciate this kind of uniqueness from Alaska to Florida, everything in between, when it comes to fisheries, so we're very honored to have him as a Ranking Member.

Senator Rubio.

STATEMENT OF HON. MARCO RUBIO, U.S. SENATOR FROM FLORIDA

Senator RUBIO. Thank you, and it would be very unsenatorial of me to give up an opportunity to speak, and I apologize for being late. We had a Foreign Relations hearing on some Ambassadors and—I'll be brief because I am more interested in your statements than I am primarily in you listening to what I have to say—but I'm happy we're going to be having this meeting about reauthorizing Magnuson-Stevens.

This is, I think, the first of three regionally-focused hearings before the Subcommittee and we'll hear about the successes and the challenges that are facing our fisheries in New England and the Mid-Atlantic region. And while each region in our country has very different kinds of ecosystems and different species of fish, many of the concerns expressed by stakeholders are very similar and I'm confident that we can identify broad policies that should be reviewed and revamped to the benefit of fishermen and the industry all across the country.

For example, in today's testimony and in the feedback I often receive from people back in Florida, accurate and up-to-date science is a fundamental requirement for proper fishery management. In the Gulf of Mexico, a recently released stock assessment for red snapper allowed the Council to raise the catch quota for the season by about two and a half million pounds; that's consequential.

Unfortunately, despite this positive result, however, this stock assessment was the first assessment conducted on the fishery in literally over 5 years and unfairly leaving the economic burden of a lower than necessary catch limit on the back of both recreational and commercial fishermen in the Gulf region. That's just my neck of the woods, but it's an example of the kind of testimony we've heard from all parts of the country. It's even more dire in the red snapper fishery in the South Atlantic, where the fishery has been essentially closed. Despite the fact that the fishery has not had a stock assessment to adequately predict the health of the stock, it has not had a stock assessment since 2008, and as a course, we'll hear today, similar issues exist in the Northeast and in the Mid-Atlantic. Each of our witnesses today are going to touch on the need for accurate and up-to-date science as a foundation for management with a particular emphasis on real-time data collection for the recreational industry and an increased emphasis on cooperative research.

I understand that vastly increasing our data on fisheries will be resource-intensive and will continue to explore efforts to address this issue, such as reforming the authorized uses of the Saltonstall-Kennedy Funds. I look forward to hearing from today's witnesses and their views on how this fund is currently being managed by NOAA.

While the need for sound science is clear, the necessary reforms to management policy are less clear, and today, I hope to hear from our witnesses which management policies under Magnuson-Stevens are working in their regions and which ones, of course, are not.

For example, addressing forage species is a common management theme in today's testimony that I've read, as is the proper definition of the word "sustainable" and the role of the National Environmental Policy Act in Fishery Management.

I'm also interested to hear from our witnesses their views on the flexibility or the lack thereof of rebuilding timelines as currently required by the Act, so again, thank you, Mr. Chairman, for holding these hearings and I look forward to the testimony of everyone here today.

Senator BEGICH. Thank you very much, Senator Rubio. John, we'll go right back to you. Thank you very much for being patient and we appreciate all of you being here. John?

**STATEMENT OF JOHN K. BULLARD, NORTHEAST REGIONAL
ADMINISTRATOR, NATIONAL MARINE FISHERIES SERVICE,
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION,
U.S. DEPARTMENT OF COMMERCE**

Mr. BULLARD. All right. Again, good morning, Mr. Chairman, Ranking Member Rubio.

My name is John Bullard. It is a personal honor to appear before you, Mr. Chair, given the historical ties between my hometown, New Bedford, Massachusetts, and the whalers of Barrow, Alaska, and the continuing towns of my home fishing port, as with Dutch Harbor. Thank you for the opportunity to speak about New England and the Mid-Atlantic perspectives of the Magnuson-Stevens Act.

Since passage in 1976, the Magnuson-Stevens Act has charted a groundbreaking course for sustainable fisheries. When reauthorized in 2007, Magnuson gave the Regional Fishery Management Councils and NOAA a clear charge and some important new tools. It mandated science-based annual catch limits and accountability measures to prevent and end overfishing. It provided for market-based fishery management and focused on collaborative research with the fishing industry.

Congress also addressed the need to improve the science used to inform fishery management. These improvements included better recreational fishing data, which we have collected through our Marine Recreational Information Program. We expect to have a nationwide survey in place in 2014. These tools are working. We are steadily rebuilding fisheries to support more fishing jobs and stronger communities.

In our latest report, the value of commercial fisheries was up and we had the highest volume of landings since 1997 and the highest value ever recorded. The seafood industry supported 1.2 million jobs. Recreational fishing supported 455,000 jobs, a 40 percent increase.

But our progress rebuilding fisheries has come with a cost. Fishermen, fishing communities and the councils have had to make tough decisions. While the Northeast and Mid-Atlantic lead the Nation in the number of rebuilt stocks, important stocks like Summer Flounder and swordfish, the Northeast also, as you mentioned, has some of the nation's most depleted stocks. Perhaps the best known is Atlantic Cod. The decline in productivity and the need to prevent overfishing so the stocks can rebuild led to significant reductions in catch levels this year. This is causing real pain for fishermen and the businesses that depend on these stocks.

We also have examples of what fishermen, scientists and managers can do when they work together to rebuild stocks. The Atlantic Sea Scallop Fishery recovered when fishermen joined with scientists at the University of Massachusetts Dartmouth and NOAA and pioneered rotational management.

Today, the fishery is valued at more than \$380 million, a fivefold increase since the dark days of the early 1990s. Scallops have made New Bedford the top revenue port in the U.S.

Looking ahead, we must continue to improve scientific data, continue our progress ending overfishing and rebuilding stocks, and

find ways to better assist fishing communities with difficult transitions to sustainable fisheries.

We're actively engaged in research to better understand why some stocks are not recovering. Our research is showing that changing ocean water temperatures, chemistry and circulation patterns have affected key zooplankton species that cod depend on. Sea surface temperatures last year in the Northeast Shelf ecosystem were the highest recorded in 150 years. This may be hindering recovery of species like cod. Fishermen are witnessing firsthand the effects of climate change.

The Managing Our Nation's Fishery Conference, co-sponsored by the eight councils and NOAA, brought together a broad spectrum of partners and stakeholders to discuss sustainability in our fisheries. Similar open public stakeholder conferences were held before the previous Magnuson reauthorizations. We'll take the recommendations from the conference and look to the future in a comprehensive way that addresses the needs of fishermen and fish, communities and ecosystems. We look forward to working closely with Congress on any efforts to reauthorize the Magnuson-Stevens Act.

Thank you and I welcome your questions.

[The prepared statement of Mr. Bullard follows:]

PREPARED STATEMENT OF JOHN K. BULLARD, NORTHEAST REGIONAL ADMINISTRATOR,
NATIONAL MARINE FISHERIES SERVICE, NATIONAL OCEANIC AND ATMOSPHERIC
ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE

Introduction

Good afternoon, Mr. Chairman and Members of the Committee. Thank you for the opportunity to testify before you today. My name is John K. Bullard and I am the Northeast Regional Administrator for the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS). NMFS is dedicated to the stewardship of living marine resources through science-based conservation and management. Much of this work occurs under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), which sets forth standards for conservation, management and sustainable use of our Nation's fisheries resources.

Marine fish and fisheries, such as salmon in the Pacific Northwest and cod in New England, have been vital to the prosperity and cultural identity of coastal communities in the United States (U.S.). U.S. fisheries play an enormous role in the U.S. economy. Commercial fishing supports fishermen and fishing communities, and provides Americans with a sustainable, healthy food source. Recreational fishing is an important social activity for individuals, families, and communities, and it is a critical economic driver of and contributor to local and regional economies, as well as the national economy. Subsistence fishing provides an essential food source and is culturally significant for many people.

Our most recent estimates show that the amount landed and the value of commercial U.S. wild-caught fisheries was up in 2011 while recreational catch remained stable. U.S. commercial fishermen landed 9.9 billion pounds of seafood valued at \$5.3 billion in 2011, increases of 1.6 billion pounds (20 percent) and \$829 million (18 percent) over 2010 figures; the highest landings volume since 1997 and highest value in nominal terms ever recorded.¹ The seafood industry—harvesters, seafood processors and dealers, seafood wholesalers and seafood retailers, including imports and multiplier effects—generated an estimated \$129 billion in sales impacts, \$37 billion in income impacts and supported 1.2 million jobs in 2011. Recreational fishing generated an estimated \$70 billion in sales impacts, \$20 billion in income impacts, and supported 455,000 jobs in 2011. Jobs supported by commercial businesses

¹See NOAA Annual Commercial Fisheries Landings Database, available at <http://www.st.nmfs.noaa.gov/commercial-fisheries/commercial-landings/annual-landings/index>

held steady from the previous year, while jobs generated by the recreational fishing industry represented a 40 percent increase over 2010.²

The Federal fishery management system is effectively rebuilding overfished fisheries. We continue to make progress towards long-term biological and economic sustainability and stability. Since its initial passage in 1976, the Magnuson-Stevens Act has charted a groundbreaking course for sustainable fisheries. When reauthorized in 2007, the Act gave the eight Regional Fishery Management Councils (Councils) and NMFS a very clear charge and some new tools to support improved science and management. It mandated the use of science-based annual catch limits and accountability measures to prevent and end overfishing, provided for market-based fishery management through Limited Access Privilege Programs (or catch shares), focused on collaborative research with the fishing industry and bycatch reduction, addressed the need to improve the science used to inform fisheries management, and sought to end illegal fishing and bycatch problems around the globe so that foreign fishing fleets are held to equivalent standards as, and do not economically disadvantage, U.S. fleets.

While significant progress has been made since the last reauthorization, we recognize that this progress has not come without a cost. Fishermen, fishing communities, and the Councils have had to make difficult decisions and many areas have had to absorb the cost of conservation and investment in long-term economic and biological sustainability. The U.S. now has effective tools to address marine fisheries management, and as we look to the future, we must look for opportunities to increase flexibility in our management system. We need to approach that challenge in a holistic, deliberative, and thoughtful way that includes input from the wide range of stakeholders who care deeply about these issues.

My testimony today will focus on NMFS' progress in implementing the Magnuson-Stevens Act's key domestic provisions, and some thoughts about the future and the next reauthorization.

Implementing the Magnuson-Stevens Act

The Magnuson-Stevens Act created broad goals for U.S. fisheries management and a unique, highly participatory management structure centered on the Councils. This structure ensures that input and decisions about how to manage U.S. fisheries develops through a "bottom up" process that includes fishermen, other fishery stakeholders, affected states, tribal governments, and the Federal Government.

The Magnuson-Stevens Act guides fisheries conservation and management through 10 National Standards. These standards, which have their roots in the original 1976 Act, provide a yardstick against which all fishery management plans and actions developed by the Councils are measured. National Standard 1 requires that conservation and management measures prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery. Optimum yield is the average amount of fish from a fishery that, over the long-term, will provide the greatest overall benefits to the Nation, particularly by providing seafood and recreational opportunities and affording protection to marine ecosystems.

The Councils can choose from a variety of options to manage fish stocks—quotas, catch shares, area closures, gear restrictions, etc.—and also determine how to allocate fish among user groups. These measures are submitted to the U.S. Secretary of Commerce for approval and are implemented by NMFS. Thus, the Councils, in developing their plans, must carefully balance fishing jobs and conservation, while ensuring that overfishing is eliminated and overfished stocks are rebuilt. Other National Standards mandate that conservation and management measures be based upon the best scientific information available, not discriminate between residents of different states, take into account variations in fisheries and catches, minimize bycatch, and promote the safety of human life at sea.

Central to many of the Council decisions are fishing jobs. Fishing-related jobs, both commercial and recreational, are the lifeblood of many coastal communities around our Nation. Fishermen and fishing industries rely not only on today's catch, but the predictability of future catches. Under the standards set in the Magnuson-Stevens Act, and together with the Councils, states, tribes, and fishermen, we have made great strides in ending overfishing, rebuilding stocks, and building a sustainable future for our fishing dependent communities. Thanks in large part to the strengthened Magnuson-Stevens Act and the sacrifices of fishing communities across the country, the conditions of many of our most economically important fish stocks have collectively improved steadily over the last decade.

² See Fisheries Economics of the U.S. 2011. NMFS Office of Science & Technology, available at: http://www.st.nmfs.noaa.gov/economics/publications/feus/fisheries_economics_2011

We all share the common goal of healthy fisheries that can be sustained for generations. Without clear, science-based rules, fair enforcement, and a shared commitment to sustainable management, short-term pressures can easily undermine progress toward restoring the social, economic, and environmental benefits of a healthy fishery. Though challenges remain in some fisheries, the benefits for the resource, the industries it supports, and the economy are beginning to be seen as fish populations grow and catch limits increase.

Progress in Implementation

Working together, NMFS, the Councils, coastal states and territories, and a wide range of industry groups and other constituents have made significant progress in implementing key provisions of this legislation.

Ending Overfishing, Implementing Annual Catch Limits, and Rebuilding

One of the most significant management provisions of the 2007 reauthorization of the Magnuson-Stevens Act was the mandate to implement annual catch limits, including measures to ensure accountability and to end and prevent overfishing in federally managed fisheries by 2011. An annual catch limit is an amount of fish that can be caught in a year such that overfishing does not occur. Accountability measures are management controls to prevent the limits from being exceeded, and to correct or mitigate overages of the limits if they occur. This is an important move away from a management system that could only be corrected by going back through the full Council process—often taking years to accomplish, all while overfishing continued. Now, when developing a fishery management plan or amendment, the Councils must consider the actions that will occur if a fishery does not meet its performance objectives. As of December 31, 2012, assessments demonstrated that overfishing ended for 58 percent of the 38 domestic U.S. stocks that were subject to overfishing in 2007 when the Magnuson-Stevens Act was reauthorized.³ Annual catch limits designed to prevent overfishing are in place for all stocks, and we expect additional stocks to come off the overfishing list as stock assessments are updated in the coming years.

There are many examples of what fishermen, scientists, and managers can do by working together to bring back a resource that once was in trouble. The Atlantic sea scallop resource was rebuilt after fishermen partnered with academic and NOAA scientists to learn more about scallop abundance and distribution, and then embraced a rotational management approach focused on long-term sustainability. Valued at over \$380 million in 2011, the scallop fishery has made New Bedford, MA, the top revenue port in the U.S.

In fact, many fisheries in the Northeast and Mid-Atlantic are a significant part of the national success story. Of the 32 stocks rebuilt nationally since 2000, 18, more than half, were rebuilt by NOAA, the Northeast and Mid-Atlantic Fishery Management Councils, the fishing industries, recreational anglers, and other partners on the Atlantic coast. In addition to Atlantic sea scallops, these include other important stocks such as summer flounder and Atlantic swordfish.

We recognize that learning from our past actions and making adjustments as needed is important. With that in mind, the agency has already begun the process of reviewing the National Standard 1 guidelines, which were last modified in 2009 to focus on implementing the requirement for annual catch limits. This was a major change in how many fisheries were managed, and we want to ensure that the guidance we have in place reflects current thinking on the most effective way to meet the objectives of National Standard 1, and builds on what we and the Councils have learned in applying the latest requirements of the Act. An Advance Notice of Proposed Rulemaking was published in May 2012, which was followed by an almost 6-month public comment period where we asked the public for input on 11 topics addressed in National Standard 1. We received a lot of input, and are in the process of working through the comments and developing options for moving forward, be it through additional technical guidelines, regulatory changes, or identifying issues for discussion as part of a reauthorization of the Magnuson-Stevens Act.

The Magnuson-Stevens Act also includes requirements to rebuild any overfished fishery to the level that can support the maximum sustainable yield, and as I mentioned, as of December 31, 2012, we have rebuilt 32 stocks nationally.⁴ We estimate that rebuilding all U.S. fish stocks would generate an additional \$31 billion in sales

³See Fish Stock Sustainability Index. This report was the source for the underlying data, but the numbers presented here were compiled specifically for this hearing. The report is available at: <http://www.nmfs.noaa.gov/sfa/statusoffisheries/2012/fourth/Q4%202012%20FSSI%20Summary%20Changes.pdf>

⁴See Fish Stock Sustainability Index. Available at: http://www.nmfs.noaa.gov/sfa/statusoffisheries/2012/fourth/MapRebuiltStocksCY_Q4_2012.pdf

impacts (including multiplier effects), support an additional 500,000 jobs, and increase dockside revenues to fishermen by \$2.2 billion, a more than 50-percent increase over current annual dockside revenues.⁵

Improvements to Science and Recreational Fishing Data

Without high quality fishery science, we cannot be confident that the Nation is attaining optimum yield from its fisheries, or that we're preventing overfishing and harm to ecosystems and fishing communities. Attaining optimum yield requires an investment in information about fish stocks, their fisheries, and their ecosystems, including habitat requirements. NMFS is committed to generating the best fishery science to support the goals of the Magnuson-Stevens Act. Increasingly, we are conducting research and analyses to understand the environmental and habitat factors affecting the sustainability of fish populations. Today, we know more about our fish stocks than ever before, and it is vital that our science not regress, as this would inevitably lead to declines in our stocks and a loss in the economic and social values they provide.

The importance of increasing the frequency of stock assessments, improving the quality of fisheries science with a better understanding of ecosystem factors, investing in cooperative research and electronic monitoring technology, and enhancing our engagement with fishermen cannot be stressed enough. Partnerships with industry and academia are a key component of successful fisheries management. Cooperative research provides a means for commercial and recreational fishermen to become involved in the science and data collection needed to improve assessments, and develop and support successful fishery management measures. The Northeast Cooperative Research Program, for example, enhances NOAA's capacity to respond to emerging management needs and research priorities associated with improving stock assessments, and has helped support the industry during the transition to sector management and the implementation of annual catch limits. Through cooperative research, fishermen and scientists learned that they could use smaller mesh fishing nets to more effectively target Acadian redfish and still have low bycatch of other overfished groundfish stocks. Based on this research, we were able to quickly authorize this fishing gear to provide some New England groundfish fishermen with an opportunity to pursue redfish while their access to rebuilding groundfish stocks, such as Gulf of Maine cod and haddock, was limited. This year we will be carrying out a new, pilot flatfish survey in New England using a chartered commercial fishing vessel; results will be evaluated to determine the potential for establishing an annual survey based on this approach. We will also work with commercial vessels to compare survey catches from commercial vessels with those from NOAA's Fishery Survey Vessel, *Bigelow*. In addition, HABCAM, a video-based, non-invasive survey technology that has been developed in partnership with the Woods Hole Oceanographic Institution, is now integral to our annual scallop surveys.

The Magnuson-Stevens Act also required improvements to recreational fisheries data collected by NMFS for use in management decisions. In October 2007, NMFS established the Marine Recreational Information Program, a new program to improve recreational fishery data collection efforts, consistent with the Magnuson-Stevens Act requirement and the 2006 recommendations of the National Research Council. The Marine Recreational Information Program is a national system of coordinated regional data collection programs designed to address specific needs for improved recreational fishing information. One major component of the Marine Recreational Information Program is the development of a national registry of anglers, also required by the Magnuson-Stevens Act, which NMFS has been using in a series of pilot studies to test more efficient mail and telephone surveys for the collection of data on recreational fishing activity. Based on the results of these studies, NMFS expects to be ready to implement new registry-based survey designs on all coasts in 2014. The Marine Recreational Information Program is also developing and implementing numerous other survey improvements to address the National Research Council's recommendations, including improved estimation methodologies, improved shoreside survey design, and improvements in for-hire fishery data collections.

Adequate observer coverage also is critical for improving data collection related to bycatch. National standard 9 requires fishery management plans to take into account the impact of the fishery on bycatch, particularly for protected species. NMFS

⁵ See the NMFS Commercial Fishing & Seafood Industry Input/Output Model. The change in landings revenue for each species was derived using the calculation: (Current Price*MSY)—(Current Price*Current Landings). If MSY is not available, a zero value is assumed for the change in landings revenue. These values were then entered into the model, which produced the job and sales impacts estimates. The model is available at: <https://www.st.nmfs.noaa.gov/documents/Commercial%20Fishing%20IO%20Model.pdf>.

continues to work with the Councils and through take reduction teams established under the Marine Mammal Protection Act to identify measures that can be taken to minimize serious injury and mortality to harbor porpoises, right whales, and other marine mammals in New England and mid-Atlantic fisheries.

Looking to the Future

Remaining Challenges

Even with these successes, we know that there are challenges that remain. While the Northeast and Mid-Atlantic lead the Nation in the number of rebuilt stocks, the Northeast also has some of the Nation's most depleted stocks; some of which have been overfished for more than a century. Some key stocks, including Atlantic cod, are having difficulty rebuilding. On September 13, 2012, then-Acting Secretary Dr. Blank determined a commercial fishery failure because a fishery resource disaster had occurred. This determination includes the 2013 fishing year, which started May 1. The decline in productivity and the need to prevent overfishing so the stocks can rebuild have resulted in significant reductions in allowable catch levels, with great economic impact on Northeast fisheries. We are actively engaged in research to better understand the drivers affecting these stocks. A recent study by NOAA scientists found that changing ocean water temperatures and circulation patterns have greatly affected key zooplankton species in recent decades, and may be limiting survival of cod larvae and impeding recovery of cod and other stocks. We determined that last year, sea surface temperatures in the Northeast Shelf Large Marine Ecosystem were the highest recorded in 150 years. In response, you'll see the FY 2014 President's Budget Request reflects a \$10 million increase for NOAA to fund research on the impacts of climate on fisheries with a focus on the Northeast groundfish region.

Looking ahead, we must continue to improve the quality and quantity of scientific data, continue progress made on addressing overfishing and rebuilding stocks, and better address the difficult transitions that can come with management changes leading to more biologically and economically sustainable fishery resources. For example, in New England, we are trying to cushion the effects of groundfish rebuilding measures by optimizing fishing opportunities on stocks that are not overfished, and by supporting marketing strategies that improve fish prices.

The most effective annual catch limits and accountability measures will require further improvements to our stock assessments and monitoring efforts. Ensuring solid, science-based determinations of stock status and responsive management will also require better linkages to ever-shifting biological, socio-economic, and ecosystem conditions. U.S. fisheries are extraordinarily diverse in value, participation, and science needs. The Magnuson-Stevens Act provides flexibility in adapting management plans to the life history differences among species and nuances of particular fisheries, as well as to the unique regional and operational differences among fisheries and in the fishing communities that they support.

We value the important partnerships we have formed, such as with the Atlantic States Marine Fisheries Commission, in helping address these challenges. NOAA's work with the Commission in support of effective science and management has been the backbone of valuable commercial and recreational fisheries. Together with our partners, we continue to explore alternative and innovative approaches that will produce the best available information to incorporate into management.

It is also increasingly important that we better understand ecosystem and habitat factors, including climate change, and incorporate them into our stock assessments and management decisions, because resilient ecosystems and habitat form the foundation for robust fisheries and fishing jobs. Similarly, it is important that we meet our responsibilities under the Magnuson-Stevens Act in concert with related legislation, such as the Marine Mammal Protection Act and the Endangered Species Act, to reduce bycatch of protected species to mandated levels. As we end overfishing and rebuild stocks, the strategic alignment of habitat and protected species conservation efforts with rebuilding and managing fish stocks will be a key component of NOAA's success.

General Views on Legislation Proposed in the 112th Congress

NOAA supports the collaborative and transparent process embodied in the Councils, as authorized in the Magnuson-Stevens Act, and strongly believes that all viable management tools should continue to be available as options for the Councils to consider when developing management programs.

It is critical that we maintain progress towards meeting the mandate of the Magnuson-Stevens Act to end overfishing and, as necessary, rebuild stocks. Annual catch limits are an effective tool in improving the sustainability of fisheries around the Nation, and NOAA has concerns with efforts that would create exemptions or

otherwise weaken provisions regarding annual catch limits. Managing fisheries using annual catch limits and accountability measures was a major change for some fisheries, and the initial implementation has identified some areas where we can improve that process. We will continue to work with the Councils to achieve the best possible alignment of science and management for each fishery to attain the goals of the Magnuson-Stevens Act.

In an increasingly constrained fiscal environment, we must not mandate duplicative or otherwise unnecessary actions. Additional stages of review for certain types of fisheries data, or repeating data collection and stock assessment efforts when there are already sound peer review processes in place are examples of actions that will divert resources to a select few fisheries at the expense of others with little additional benefit. Moreover, legislation should be cost-effective, particularly during this time of constrained funding. NMFS welcomes the opportunity to work closely with Congress, the Councils, and the recreational and commercial fishing industries, to use the best available science to seek opportunities for efficiency and improved management in order to end overfishing, rebuild stocks, and achieve stable economic opportunities for our fishermen and coastal communities.

The Next Reauthorization of the Magnuson-Stevens Act

With some of the largest and most successful fisheries in the world, the U.S. has become a global model of responsible fisheries management. This success is due to strong partnerships among the commercial and recreational fishing, conservation, and science and management communities. Continued collaboration is necessary to address the ongoing challenges of maintaining productive and sustainable fisheries.

The *Managing Our Nation's Fisheries 3* conference—co-sponsored by the eight Councils and NMFS—brought together a broad spectrum of partners and interests to discuss current and developing concepts addressing the sustainability of U.S. marine fisheries and their management. The conference was developed around three themes: (1) improving fishery management essentials; (2) advancing ecosystem-based decision making; (3) and providing for fishing community sustainability.

We were excited to see a wide range of stakeholders represent many points of view, from commercial and recreational fishing, to the conservation and science and management communities. Before the last reauthorization, we co-sponsored two of these conferences, and they played an important role in bringing people together and creating an opportunity to present ideas and understand different perspectives. We expect that the ideas that emerged from this event will inform potential legislative changes to the Magnuson-Stevens Act, but the benefits are much greater than that. The communication across regions and Councils provided an opportunity to share best practices and lessons learned, and could also inform changes to current policy or regulations that can be accomplished without statutory changes.

Conclusion

Because of the Magnuson-Stevens Act, the U.S. has made great progress in ending overfishing in federally-managed fisheries, rebuilding stocks, and ensuring conservation and sustainable use of our marine fisheries. Fisheries harvested in the U.S. are scientifically monitored, regionally managed, and enforced under 10 national standards. But, we did not get here overnight. Our Nation's journey toward sustainable fisheries has evolved over the course of 35 years.

In 2007, Congress gave NOAA and the Councils a clear mandate, new authority, and new tools to achieve the goal of sustainable fisheries within measureable timeframes. Notable among these were the requirements for annual catch limits, and accountability measures to prevent, respond to, and end overfishing—real game changers in our national journey toward sustainable fisheries, and ones that are rapidly delivering results.

This progress has been due to the collaborative involvement of our U.S. commercial and recreational fishing fleets and their commitment to science-based management, improving gear-technologies, and application of best-stewardship practices. We have established strong partnerships among NOAA, the states, the Councils, and the fishing industry. By working together through the highly participatory process established in the Magnuson-Stevens Act, we will continue to address management challenges in a changing environment.

It is important to take time and reflect on where we have been to understand where we are. We will take the recommendations from the *Managing Our Nation's Fisheries 3* conference, and look to the future in a holistic, comprehensive way that considers the needs of the fish and the fishermen, and the ecosystems and communities. We look forward to these discussions, and will happily work with Congress on any efforts to reauthorize the Magnuson-Stevens Act.

Thank you again for the opportunity to discuss implementation progress of the Magnuson-Stevens Act and future efforts of reauthorization. I am available to answer any questions you may have.

Senator BEGICH. Thank you very much. Our next panelist is C.M. “Rip” Cunningham, Jr., Chairman, New England Fisheries Management Council.

Mr. Cunningham.

**STATEMENT OF C.M. “RIP” CUNNINGHAM, JR., CHAIRMAN,
NEW ENGLAND FISHERIES MANAGEMENT COUNCIL (NEFMC)**

Mr. CUNNINGHAM. Thank you, Mr. Chairman, Senator Rubio, on behalf of the New England Fisheries Management Council. As the current Chair, I am pleased and honored to testify and hope that I can be helpful to you in your deliberations concerning MSA.

With 18 voting New England Council members, there are often diverse opinions about what the problems are and what their solutions might be. As a result, my comments do not represent the official position of the Council, but the sense of the Council as a body.

In New England, we have transitioned to a sustainable management regime and the past few years have seen impressive changes. We have completely revised the management of the iconic New England Groundfish Fishery from input to output controls. The scallop fisheries rotational management system is maturing into an efficient program that consistently leads to robust industry revenues while preventing overfishing. Also, we are completing a multi-year effort to minimize the adverse effects of fishing on essential fish habitat.

The stocks in the sea scallop, monkfish, red crab, red fish, whiting, pollock, herring and dogfish fisheries are being fished at sustainable levels and effort is focused on improving the net benefits to the Nation. Partly due to environmental regime shifts, efforts to end overfishing on cod and several flounder stocks have been frustrated. Even though quotas are set according to advice and actual catches have recently been below the quotas, this has led to an erosion of trust in both the science and the management.

The Council’s adoption of sustainable fishing practices has dramatically increased the demand for stock assessment advice. We believe that sufficient resources are not being provided to the National Marine Fisheries Service to meet these demands. In our region, there is a need for about 60 different stock updates and yet, the Science Center is only capable of providing about 10 to 12. With fast-growing species, this means some quotas are set to catch paper fish, fish that are a result of assumptions about future stock growth. This is a recipe for disaster. Only with enhanced support will the system be able to make the statutory demands.

As for MSA, we do not believe wholesale revisions are necessary. We believe that the Council’s system is successful at providing an open and transparent venue for the debate on using fishery resources, but there are several important issues that need to be addressed.

First, we believe that the current emphasis on a fixed rebuilding time period is misdirected. This approach assumes a level of stock assessment certainty that does not exist, nor can we predict or control the environmental changes that are key drivers in rebuilding.

Management should focus on ending overfishing with a narrowly defined exception to the requirement when there is a dramatic change in the perception of stock status.

Next, third party sustainability certification should be replaced by a National Marine Fisheries Service Certificate of Sustainability.

Next, there is an increasing interest in ecosystem approaches to fishery management, but some provisions of the statute limit the ability to pursue such approaches. This needs to be addressed. And in some cases, data confidentiality provisions of the statute hampered the ability to understand the effects of management decisions. This is a public resource and the Council needs access to the basic data.

In closing, the Council has expended substantial effort to meet the requirements of the reauthorized MSA and this effort has demonstrated that the current capacity of the National Marine Fisheries Service to provide scientific support cannot meet the requirements. Without that, the management process is likely to fail. MSA does not need to be dismantled and resurrected. Addressing a short list of issues would make a substantial impact on the Act's effectiveness. Magnuson is working. The improvement in the nationwide tally of stocks no longer experiencing overfishing and not overfished is evidence of the Act's success.

Thank you, again, for asking me to participate on behalf of the New England Fishery Management Council.

[The prepared statement of Mr. Cunningham follows:]

PREPARED STATEMENT OF C.M. "RIP" CUNNINGHAM JR., CHAIR, NEW ENGLAND
FISHERY MANAGEMENT COUNCIL (NEFMC)

On behalf of the New England Fishery Management Council, I am both pleased and honored to respond to your invitation and hope that I can be helpful to you in your deliberations concerning the Magnuson-Stevens Act, as well as those members of the fishing community who are here today.

Before I begin, I would like to offer a few details about my background. I have served for nine years on the Council, five years as its Vice Chair and two years as Chair. I am currently the Council's chair—but only for a few more weeks as I have reached my term limit. My nine years of service on the Council has been at times fascinating, at times frustrating—but always rewarding. Prior to my appointment to the Council, I was the owner, Publisher, and Editor-in-Chief of Salt Water Sportsman, the world's largest sport fishing magazine, with approximately four million readers. I am privileged to have made a living by working with and for our valuable marine resources.

With 18 voting New England Fishery Council members, there are often divergent opinions about the problems we face and their solutions. As a result, my comments may not represent the opinion of any individual member or the official position of the Council, but I will try to convey the sense of the Council as a body. I will talk about both our progress in the transition to sustainable management and a few suggested changes to the Magnuson-Stevens Act (M-S Act).

Progress Made in the Transition to Sustainable Management in New England

In New England, we have had mixed success in the transition to sustainable fisheries management. The past few years have seen impressive changes in our management system. We successfully implemented a system of Annual Catch Limits and Accountability Measures for all of our fisheries mandated by the 2007 amendments to the Magnuson-Stevens Act. We completely revised the management of the iconic New England groundfish fishery in 2010, shifting most of the fishery from an input management regime to an output or catch share system. The scallop fishery's rotational management system is maturing into an efficient program that consistently leads to robust industry revenues while preventing overfishing. Also, we are com-

pleting a multi-year effort to redesign our approach to minimize the adverse effects of fishing on essential fish habitat.

The impacts of these changes, however, have not been positive in all cases. The target stocks in the Atlantic Sea Scallop, Monkfish, Red Crab, Redfish, Whiting, Atlantic herring, and Dogfish fisheries are being fished at sustainable levels. These fisheries are manageable and sustainable and management is focused on improving the net benefits they produce for the Nation. Within the Skate and Northeast Multi-species fisheries, however, there are numerous stocks that are still overfished and/or subject to overfishing. Partly due to environmental regime shifts, our extensive efforts to end overfishing on cod and several flounder stocks have been frustrated at every step of the way. Even though quotas are set according to the advice of our Scientific and Statistical Committee and actual catches have recently been below the quotas. This has led to an erosion of trust in both the scientific advice and the management system. More importantly, the reduced quotas have led to a dramatic reduction in the active groundfish fishing fleet, with fewer than 400 active boats remaining, compared to nearly 1,200 in 2001. Our groundfish fishermen and fishing communities have been negatively impacted by the decline in landings and revenues. The Council has been largely stymied in our efforts to find ways to mitigate the low quotas that are in effect this year. After nearly twenty years of increasingly restrictive management measures, many groundfish fishermen feel that the promise of future benefits from stock rebuilding is an empty one.

As I mentioned, the Council has complied with the requirement to adopt Annual Catch Limits and Accountability Measures in all our fisheries. The one problem Councils have all seen is that this management system dramatically increases the demand for stock assessment advice. It is our belief that sufficient resources are not being provided to the National Marine Fisheries Service to meet these demands. In our region, there is a need for periodic updates for about sixty different stocks and yet the science center is only capable of providing annual updates for about ten to twelve stocks. As a result assessments of an individual stock are often separated by four or five years. With fast growing species, this means some quotas are set to catch “paper fish”—fish that have never actually been seen in an assessment, but are the result of assumptions about future stock growth. This is a recipe for disaster and contributes to our difficulty in rebuilding groundfish.

It is not just the workload of scientists that has increased in recent years. Because of the increased complexity of both fisheries and other statutes, the preparation and review of management actions by Council and National Marine Fisheries Service staff is taking more time and resources than in the past. As a result the system threatens to become bogged down and unable to respond to our rapidly changing conditions. Only with enhanced support will the system be able to meet the demands imposed by the current statutory framework.

MSA Changes to Consider

As one would hope with a law that has been in effect for thirty-seven years, we do not believe wholesale revisions are necessary. We believe that the Council system, while not without its warts, is successful at providing an open, transparent venue for the debate on using fishery resources. Nevertheless, we do believe there are several important issues that need to be addressed.

First, given our experience with the rebuilding of groundfish stocks, it is probably not surprising that we believe that the current emphasis on a fixed rebuilding time period is misdirected. This approach assumes a level of stock assessment certainty that does not exist. We have little ability to predict, and no ability to control, the environmental changes that are key drivers in rebuilding progress. We think management should focus on ending overfishing and not arbitrary rebuilding time frames.

Obviously, we fully support the focus on the requirement to end overfishing. Our only suggestion to improve this part of the statute would be to create a narrowly-defined exception to the requirement to end overfishing immediately when there is a dramatic change in the perception of stock status. This is the result of our recent experience with a cod stock, where two successive assessments presented a dramatically different view of stock size that was not due to fishing activity. A more flexible approach would allow a management reaction that would be responsive to the National Standard 8 requirement to consider the needs of fishing communities. As I noted, however, this should be a narrow exception and not provide a loophole to overfish indefinitely.

With one of the more strict management frameworks in the world, we believe that our industry should not be required to buy a third-party certification to demonstrate that our fishery products are sustainable. There are several competing seafood certification programs that confuse buyers, and the standards of these programs can

differ. This situation could be simplified if the M-S Act were modified to authorize a National Marine Fisheries Service certificate of sustainability. Such a program would provide our industry with the ability to promote and sell seafood products in the world market.

In addition to these main points, there are also a few other issues that deserve attention:

- The relative importance of National Standard 1 (the requirement to end overfishing) and National Standard 8 (consideration of impacts to fishing communities) continues to be troublesome. Courts have interpreted National Standard 1 to take precedence; it would be helpful to clarify if this is indeed the intent of Congress.
- There is increasing interest in ecosystem approaches to fishery management, but some provisions of the statute limit the ability to pursue such approaches. A more explicit recognition of this concept would help us pursue this rapidly-developing approach.
- The overlap between the National Environmental Policy Act and the M-S Act has not, in our opinion, been adequately addressed in spite of congressional direction to do so. While NMFS has published updated guidance that the Councils have reluctantly acceded to, we do not agree that this addresses the fundamental problem nor were the Councils adequately consulted in its development.
- In some cases the data confidentiality provisions of the statute hamper the ability of managers and the public to understand the effects of management decisions. This is a public resource, and the Council members need access to the basic data that will tell them the effect of their actions.

Summary

The NEFMC has expended substantial effort to meet the requirements set forth in the 2007 reauthorization of the Magnuson-Stevens Act by implementing annual catch limits and accountability measures for all of the managed species under its jurisdiction. This effort has demonstrated that the current capacity of the National Marine Fisheries Service to provide scientific support cannot meet the requirement for continuously updated stock assessments. Environmental regime shift has also dramatically increased the need for updated science. Without enhanced scientific support, the management process is likely to fail. It is said there are three important things to success in the real estate business, location, location, location. There are the three things that will enhance the fisheries management process, science, science, and science.

MSA does not need to be dismantled and resurrected. Addressing a short list of issues would make a substantial impact on the Act's effectiveness:

- The focus should be on ending overfishing. That is the one aspect that Councils can control effectively.
- Address the existing regulatory impediments in the Act that will adversely impact the shift to ecosystem based fishery management.
- Better define the priority of competing National Standards.
- Support the industry with a national sustainability certification program.

MSA is working. The improvement in the nationwide tally of stocks no longer experiencing overfishing and not overfished is evidence of the Act's success. The system works and simply needs some ongoing modifications, which will likely be the case in another six years.

Thank you again for asking me to participate on behalf of the New England Fishery Management Council.

Senator BEGICH. Thank you very much for your testimony.

Next, we have Richard Robins, Chairman of the Mid-Atlantic Fishery Management Council.

STATEMENT OF RICHARD B. ROBINS, JR., CHAIRMAN, MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

Mr. ROBINS. Thank you, Mr. Chairman and Ranking Member Rubio. I am Rick Robins, Chairman of the Mid-Atlantic Fishery Management Council. I appreciate the opportunity to testify before you this morning on the Magnuson Act.

I'm pleased to report that the Council's stock rebuilding efforts that were ongoing at the time of the last reauthorization are now essentially complete. All of the stocks for which we have biological reference points are either at, near or above their biological targets. Today, fisheries in the Mid-Atlantic support over \$600 million in commercial landings. They also support 21 million recreational fishing trips taken annually by over five million anglers.

Since reauthorization, we've integrated the Scientific and Statistical Committee into our decisionmaking process. We've developed a quota-setting framework that incorporates a risk policy and a harvest control rule. The new processes worked very well for situations in which we have inadequate stock assessment. It also provides for a more clear and consistent approach to setting quotas; it strikes an effective balance, I believe, between accounting for scientific uncertainty and trying to maximize the yield out of our managed stocks. We've also established an Advisory Panel Fishery Performance report to provide the SSC and the Council with timely, on-the-water perspectives about trends in our fisheries.

In terms of challenges and recommendations, I'll touch very briefly on five areas: sustainability in marketing, science, ecosystem approaches, representation and recreational fisheries management.

Despite our rebuilding successes, some of our commercial fishermen and fisheries struggle to regain their footing in U.S. and international markets, despite the fact that the stocks are rebuilt and the quotas are increasing. There is also a lingering and sometimes demoralizing sense that U.S. fishermen in our region are still negatively associated with overfishing. These problems deserve to be addressed. U.S. fishermen fishing under today's Magnuson Act should be standing tall on the world's stage. In a market transformed by globalization, the sustainability of U.S. fisheries needs to be affirmed and U.S. processors and fishermen should be able to identify and label their fish caught under the gold standards of the Magnuson-Stevens Act as being sustainably and responsibly harvested. We don't need a complex Federal certification program, but rather, a public affirmation of the core strengths of the U.S. management system would be an important step toward facilitating education, awareness and better marketing for the benefit of U.S. fisheries.

Shifting to science, adequate science is critical to our mission. I have three specific recommendations in this area. First, we need adequate research capacity within the system. The same system that I described to you that works very well for setting quotas in data-rich situations has not worked well in data-poor situations; it's produced inconsistent results. That highlights the need for this research capacity.

Second, we also need adequate capacity within the Northeast Fishery Science Center to generate operational stock assessments and assessment updates at appropriate frequencies. We share these resources with the New England Council and the Atlantic States Marine Fisheries Commission, so these capacities are critical.

Cooperative research, and specifically, cooperative surveys such as NEAMAP, should be adequately funded and expanded strategically in the Northeast region. It's not just about how fisheries data

are packaged and communicated that build confidence. Directly engaging the stakeholders in the collection of data is the most direct strategy for building confidence in fisheries data and fisheries management.

With respect to ecological considerations, our Council is pursuing an incremental and evolutionary strategy to implement an ecosystem approach to fisheries management. At the same time, the Northeast Fisheries Science Center is strategically expanding its ecosystem research programs to support this transition. The reason I bring this up to you today is because a truly ecosystem-based approach to management may require us to set quotas for some species above maximum sustainable yield while we set quotas for other species well below maximum sustainable yield. The ecosystem references in the Act should be reviewed and clarified, if necessary, to ensure alignment between the ecosystem references, the national standards and the definition of optimum yield.

In terms of representation, it was clear from the port meetings we've held over the last 2 years with Southern New England fishermen that these fishermen in those states desire some form of representation on our council. Similarly, the Mid-Atlantic's top fishery, Sea Scallops, is managed by the New England fishery and we don't have a final vote on those actions through that New England process. This issue is expected to be exacerbated by ongoing and substantial shifts in fisheries population and response to changing ocean temperatures. One option to resolve this in the interest of both councils would be to vest liaisons with voting rights.

Turning to recreational fisheries, enhancing the stability of our fisheries is one of our top strategic priorities. We've just submitted an omnibus amendment that would frame our recreational accountability measures in such a way that it would take the statistical uncertainty into account. We would suggest leaving room in the Act for some flexibility in recreational AMs.

In conclusion, the Mid-Atlantic Council's history offers solid evidence that the system established by the Magnuson Act is effective at preventing overfishing and rebuilding stocks. The next authorization should build on that success, but should do so in broader terms than simply preventing overfishing. We need to define and pursue success in terms that result in the management of U.S. fisheries for the greatest overall benefit of the nation, not just biologically, but also, socially, economically and ecologically, to ensure better futures for our fisheries and our fishing communities. As strong as the system is, we can improve it by working together to fine-tune the Act, the policies that shape its implementation and our practices.

Thank you.

[The prepared statement of Mr. Robins follows:]

PREPARED STATEMENT OF RICHARD B. ROBINS, JR., CHAIRMAN, MID-ATLANTIC
FISHERY MANAGEMENT COUNCIL

Good morning, Mr. Chairman and Members of the Committee. Thank you for the opportunity to testify before you today. My name is Richard B. Robins, Jr. and I am the Chairman of the Mid-Atlantic Fishery Management Council. I was appointed to the Council in 2007 and have served as chairman for the last five years. In addition to my involvement on the Council, I have served as an Associate Member of the Virginia Marine Resources Commission since 2004. I have been processing and

exporting U.S. seafood since 1990, and I have also been a lifelong recreational fisherman.

The Mid-Atlantic Council has primary management responsibility for 8 species of fish, 2 species of squid, and 2 species of shellfish, as well as the surrounding ecosystem and habitats, in the Exclusive Economic Zone from North Carolina to New York. The Council manages 5 species jointly with the Atlantic States Marine Fisheries Commission and 2 species jointly with the New England Fishery Management Council.

In 2011, the commercial fishing industry in the Mid-Atlantic harvested 858 million pounds of fish and shellfish valued at \$605 million, and more than 5 million fishermen took nearly 21 million fishing trips. The commercial and recreational fishing industries also provide approximately 80 thousand full- and part-time jobs. Although our jurisdiction includes the seven states of the Mid-Atlantic, the ecological and socioeconomic impacts of our fisheries extend well beyond our region.

The Mid-Atlantic Council's stock rebuilding efforts that were ongoing at the time of the last reauthorization are now complete. All of the stocks we manage that have biological reference points are now rebuilt to levels at, near, or above their biological targets. Several of our stocks, including Atlantic Mackerel, do not currently have biological reference points and their status is unknown.

I was asked to speak today about three topics as they relate to fisheries management in the Mid-Atlantic:

1. Progress made since the 2006 reauthorization;
2. Ongoing challenges faced in transitioning to sustainable fisheries; and
3. Tools, resources, and statutory refinements needed to address these challenges.

The Council just completed its first Visioning Project and Strategic Planning Process. The initiative benefitted from extensive public input from thousands of fisheries stakeholders throughout the region, and culminated in a 5-year Strategic Plan. My responses to these questions will reflect not only my own perspective as a Council member, recreational fisherman, and commercial industry participant but also the goals and concerns identified by stakeholders during this planning process.

Recent Progress and Successes

The U.S. has the strongest fisheries management system in the world. At the time of the last reauthorization, the Mid-Atlantic Council was already on a solid path to rebuilding stocks that were depleted in the 1980s and 1990s. The Council's rebuilding success was facilitated by quota-based management that generally complied with the scientific advice that came through the stock assessment process and quota recommendations from Monitoring Committees.

The 2006 reauthorization required that the Council's Scientific and Statistical Committee (SSC) provide the Council with Acceptable Biological Catch (ABC) recommendations for each fishery. This was a significant institutional change, and the Council focused on developing necessary capacities within the SSC to develop and refine the quota-setting process.

In addition, the Council was able to bring all of its fishery management plans (FMPs) into compliance with the Annual Catch Limit (ACL) and Accountability Measure (AM) requirements of the Act through an omnibus amendment. At the core of the omnibus amendment is a harvest control rule and associated risk policy that quantifies the Council's tolerance for risk as a function of each fishery's stock status and the biological life history characteristics of the species. Since the Council was able to incorporate the harvest control rules for all fishery management plans in an omnibus amendment, our approach to risk and accounting for scientific uncertainty is consistent across plans and is explicitly incorporated in the harvest control rules.

Our risk policy is an example of success because it strikes a balance between maximizing yield from a stock and accounting for the scientific uncertainty that is inherent in stock assessments. The new framework has worked very well for fisheries that have stock assessments with reliable biological reference points. The framework creates consistency for the Council and the public by establishing a crucial link between the Council and the SSC in the quota-setting process.

A second major area of improvement for us since 2006 relates to the way we incorporate fishermen's on-the-water perspectives, knowledge, and market information into the management process. In 2011, we began developing Advisory Panel (AP) Fishery Performance Reports to provide the SSC with an annual description of the factors that influenced fishing effort and catch for each fishery. These reports provide the SSC with additional contextual information and are particularly useful when we establish quotas for data-poor stocks. They also provide useful and up-to-date information about the operations Mid-Atlantic fisheries. We have also reviewed

and updated the composition of our APs to ensure the Council was benefitting from a broader range of stakeholder interests and geographical perspectives.

The Council's post-reauthorization process changes have not been easy, but they have helped us establish a more clearly defined quota-setting framework and contributed to successful stock rebuilding in Mid-Atlantic fisheries.

Challenges and Recommendations

Allow fisheries managed under Magnuson-Stevens to be marketed accordingly

As I mentioned previously, we have been steadily rebuilding stocks that were depleted in an earlier chapter in history. Despite these successes, the social and economic outcomes for our region's fishing communities have not been entirely positive. Many members of the commercial fishing industry struggle to regain their footing in U.S. and international markets even as quotas increase. There is also a lingering and sometimes demoralizing sense that U.S. fisheries and fishermen are still negatively associated with overfishing, despite the solid rebuilding successes and sustainability requirements in the current act.

These problems deserve to be addressed—U.S. fishermen fishing under today's Magnuson Act should be standing tall among their international peers. In a market transformed by globalization, the sustainability of U.S. fisheries needs to be affirmed, and U.S. fishermen and processors should be able to identify and label their products as fish that were harvested responsibly and sustainably under the gold standards of the Magnuson-Stevens Act.

A U.S. fisherman catching fish in fisheries subject to the Magnuson's peerless standards should not have to make a hefty investment in a third-party certification in order to sell his fish to U.S. consumers, much less to the vendors of the U.S. Park Service. Within the global market, there will always be a need and a role for third-party certifiers for sustainability and food safety.

I would be very concerned about shouldering NMFS with an unfunded, complicated certification program. Rather, I think the focus should be kept simple and should give the agency the authority to confirm that fisheries subject to Federal management are sustainably managed, consistent with the legal requirements of the Magnuson-Stevens Act. This would allow fishermen and processors to label and market their product accordingly. Such a designation may or may not satisfy a European retail chain, but a public affirmation of the core strengths of the U.S. management would be an important step toward better marketing of U.S. fisheries products.

Provide funding and support for the collection of timely and accurate data to meet the requirements of the Act

The effectiveness of our fisheries management system hinges on the availability of accurate information about the status of our fisheries. The stock assessment and research capacities of the Northeast Fishery Science Center (NEFSC) are critical to the successful management of fisheries in the Mid-Atlantic. The ACL requirements of the last reauthorization increased the demand for assessment products from the NEFSC, which also supports the New England Fishery Management Council and the Atlantic States Marine Fisheries Commission. I would specifically recommend additional investment in the NEFSC's stock assessment and research capacities to meet the future needs of the region's managed fisheries.

I also suggest securing the future of cooperative and collaborative research initiatives such as the highly successful Northeast Area Monitoring and Assessment Program (NEAMAP). These programs build stakeholder confidence in fisheries data used to support fisheries management by bringing fisheries scientists and commercial fishermen together to collect important fisheries data. Cooperative and collaborative initiatives like NEAMAP should be expanded in a strategic way to supplement existing surveys in the Northeast Region.

Data-Poor Stocks

While I have already described several areas of progress relative to how we use scientific information in the management process, this progress has not applied evenly across our fisheries. The revised process created by the 2006 MSRA has not worked as well for data-poor stocks. In cases where a stock assessment fails to produce reliable biological reference points, the process has produced inconsistent results.

Black sea bass and butterfish are two examples of fisheries that have been the subject of significant quota-setting challenges as a result of scientific uncertainty. For both fisheries, the Council has had to work through an iterative process with the Northeast Regional Science Center, the SSC, and other management partners to conduct supplemental analyses to achieve improved outcomes. Every Council has

some data-poor stocks, and these examples highlight the need for sustained investment in the research necessary to support improved stock assessments that will move these stocks from the data-poor category, which is currently subject to ad-hoc quota-setting methods, to the point that they have acceptable biological reference points.

Improve Alignment of Ecosystem Objectives in the MSA with Other National Policies

The Mid-Atlantic Council has taken several significant steps toward a more ecosystem-based approach to fisheries management since the last reauthorization. These steps have included: 1) Establishing an Ecosystem Subcommittee within the SSC to provide the Council with scientific advice specific to ecosystem management, 2) Holding a comprehensive forage fish management workshop in 2013, and 3) Initiating an Ecosystem Approach to Fisheries Management Guidance Document in 2013.

The Council is pursuing an incremental, evolutionary strategy to incorporate ecosystem approaches to fisheries management. This approach responds to significant public interest in the management of low trophic level (forage) stocks and a broader objective of more effectively incorporating species interactions, environmental conditions, and habitat associations into our management decisions. The process should ultimately enhance the ecological sustainability of our managed fisheries.

It may be necessary to fish some species at levels above Maximum Sustainable Yield (MSY) and other species well below MSY in order to achieve ecosystem level objectives. The act should be clear on these issues as they relate to the definition of Optimum Yield (OY).

Address emerging representation issues

Fish do not respect political boundaries, so the Mid-Atlantic Council has spent considerable time in Southern New England holding port meetings with fishermen and fisheries stakeholders during our Visioning Project. From Stonington, Connecticut to Chatham, Massachusetts, each of these groups raised a common concern regarding representation. Specifically, they expressed concern over the fact that their state jurisdictions did not have a voting representative on the Mid-Atlantic Council despite the fact that some of them depend substantially on fisheries managed by the Mid-Atlantic Council.

Similarly, the Mid-Atlantic fishing and processing industries depend significantly on the Atlantic Sea Scallop fishery. Sea Scallops are the top commercial fishery in the Mid-Atlantic region in ex-vessel value. New Jersey and Virginia landed nearly 23 million pounds of sea scallops worth \$222 million in 2011. While the Mid-Atlantic Council has two voting seats on the New England Council's Sea Scallop Oversight Committee, the Mid-Atlantic committee members are not able to vote on final Council actions.

Geographic distributions of fisheries populations are also shifting substantially in response to changing ocean temperatures. The governance implications of these ongoing changes in the marine environment should be considered to ensure that constituents throughout the range of these fisheries are adequately and effectively represented in the process. The Mid-Atlantic Council is addressing these concerns proactively in a governance workshop in March of next year. Meanwhile, vesting the liaisons of the New England and Mid-Atlantic Councils with motion-making and voting rights in the reauthorization would ensure that both Councils can preserve their interest in fishery management actions through the final Council vote that submits a recommendation to the Secretary of Commerce. Another strategy would be to give the Council the discretion to submit final actions when convened as a committee of the whole, which would allow the additional committee members to vote on the final action.

Incorporate provisions that account for the needs and interests of the recreational fishing community

Recreational fisheries are an important source of food, recreation, employment, and income for many Mid-Atlantic communities. In 2012, 5 million anglers took about 20 million fishing trips in the Mid-Atlantic region. The recreational fishing community is highly diverse and includes not only private anglers, but also for-hire vessels (*i.e.*, party and charter boats with paying customers) whose business interests may reflect different values and regulatory preferences. It is clear from input we received from stakeholders during our Visioning Project that recreational anglers want reasonable access to fishing opportunities and they want greater regulatory stability.

Since the last reauthorization, we have made considerable progress toward adapting our management system to better account for the different needs and interests of the recreational community. We recently completed an Omnibus Amendment that

involved a comprehensive review and overhaul of our recreational Accountability Measures (AMs). Our recommendations were designed to enhance stability of recreational fisheries by improving alignment of our management strategies with the statistical characteristics of the recreational catch estimates.

Conclusion

The Mid-Atlantic Council's history offers solid evidence that the system established by the Magnuson-Stevens Act and subsequent amendments is effective at preventing overfishing and rebuilding stocks. The next reauthorization should build on the past success of the act and position our fisheries for future success in broader terms than simply preventing overfishing. We need to define and pursue success in terms that result in the management of U.S. fisheries for the greatest overall benefit of the Nation not just biologically, but also socially, economically, and ecologically to insure and secure a better future for our fisheries and fishing communities. As strong as the system is, we can improve it by working together to fine tune the act, the policies that shape its implementation, and our practices.

Senator BEGICH. Thank you very much. Thank you, again, for all of your testimony.

I'll start off; we'll do a 5-minute round. I'll start with a few questions then ask other members to join in with their questions.

First, Mr. Bullard, thank you very much for being here. I want to specifically ask you about a couple things. One, a little follow up on a report that was done—I think it was called the Touchstone Report on New England Fishery Management—are you familiar a little bit with it?

Mr. BULLARD. Yes.

Senator BEGICH. OK. Let me ask you, so I won't go through the whole detail of what the report's purpose was, but because of your knowledge of it, I'm curious about the actions has NOAA taken—I know there were some recommendations within the report; once it was done, NOAA announced that it would adopt a series of immediate actions and near-term plans to incorporate the report's recommendations. Can you give me just a sense of how that is going or what the status is from NOAA's perspective?

Mr. BULLARD. Yes, we are very grateful for Pres Pate and Touchstone's report to improve the work of the regional office with the Mid-Atlantic and New England Councils and we've taken those recommendations very seriously. We have drafted formal agreements with the Mid-Atlantic Council, which I think is being signed pretty much as we speak, Mr. Chair, and hope to do something very similar with the New England Council.

We're also reviewing our data collection systems with an eye to improving efficiency in data quality, to meet short and long-term management. We've undergone a plain language campaign that's resulting in clearer and more concise informational bulletins. It has always amazed me how fishermen can get through the regulations that constantly change to comply with them, so we're trying to make them easier to understand. We have assembled a team at the regional office and the New England Council to improve the process of developing fishery management plans, which are incredibly complex.

And last, I'd say when I took this job about 11 months ago, I did a series of 20 listening sessions from Manteo, North Carolina to Ellsworth, Maine, to go to people's places of business to listen to what they had to say about how we could improve our operations. I got many, many comments. We deciphered them, we reported

back on what I heard, and we're starting to put in place improvements based on the many comments that we got from people.

Senator BEGICH. Very good. Thank you.

Let me do a quick follow up and then one other question related and then I'll ask a couple others to other folks.

Can you, on that report, can you at some point present to the Committee or give to the Committee kind of the here's the recommendations, here's the status, as you've just described some of them, and then timetable. And some of that status could be that you may not do some of the recommendations, which is understandable, because it may not be practical, but is that something that you could provide at some point to the Committee?

Mr. BULLARD. Sure.

Senator BEGICH. In a very simple—I don't need a complex, I hate to say this, government document; I want a simplified, like what you're working on here, a simplification.

Mr. BULLARD. Yes.

Senator BEGICH. That would be great if you could do that.

Mr. BULLARD. We'd be happy to.

Senator BEGICH. Then the other one, I'm a big proponent of electronic monitoring systems. I've met with Woods Hole and had some great discussion there on their technology, as well as other places around the country. Can you provide me with any additional information? I know I harass NOAA on this all the time because I think it's just, the last time, I think it was in 2011, Administrator Lubchenco indicated an openness to kind of broadly implement this technology. Do you have any comments in regards to that, in advancing the use of this technology? I know in New England, there's some great testing being done by Woods Hole and others.

Mr. BULLARD. Yes, I believe that in this area, there is much that can be gained in efficiency that can benefit fishermen and can certainly benefit the Agency, and in Bill Karp, we have someone that is a gift from the State of Alaska, who has come down to direct the Science Center. He's got a lot of familiarity with the advances that have been made in Alaska and we are going to benefit from his experience.

There is a working group that we've assembled between the regional office and the Science Center. It had almost a full-day meeting, most recently in Boston a couple of days ago, on this. It's incredibly complex; a lot of people think it's just a question of putting cameras on boats. As you know, it's much more complicated than that; it involves work with the councils; there are regulatory changes that have to be made. Both councils, as the Chairs can tell you, have working groups set up, very recently set up. We're starting with working teams at the regional office and the Science Center to understand how we might do this, whether it would involve full retention where the cameras might be used, just to see whether or not you're discarding. And so—I'm new to this, I have a hard time with my cell phone, but I'm learning about this—and we're trying to figure out which models, which fisheries, might this work on first, and which fisheries would be most appropriate, what regulations would have to be changed. We're trying to get it straight between the Science Center and the regional office, then bring in the councils to figure out which regulations have to be changed, in-

volve the industry, some of whom are chomping at the bit, they can't wait to get started; others of whom see cameras as—oh, wait, I'm not sure I want to go there. And we're trying to figure out how it works in the Northeast and how that fits with the national effort because this is, as you know, a priority in NOAA fisheries nationally as well. So I appreciate how complex it is; I also appreciate how important it is and how big the potential payoff is.

Senator BEGICH. Very good. Thank you.

Let me go ahead and turn to Senator Rubio, my time is up, for his questions.

Senator RUBIO. Thank you.

I have two initial questions of this panel, and I'll actually direct them at you, Mr. Cunningham, but Mr. Robins, I'd like to hear from you on these as well.

The first is: should the Act be revised to offer greater flexibility in the rebuilding timelines for fisheries, if you could comment on that.

Mr. CUNNINGHAM. Thank you.

I think, as I mentioned in my comments, the New England Council feels that the focus should be on preventing overfishing, not on a set rebuilding timeline because as it currently is, we don't have the scientific information that's exact enough to allow us to rebuild to that set time period, so that's where we think the emphasis should be placed, that councils should control overfishing.

Senator RUBIO. So the Council would be supportive of an effort to offer greater flexibility with regards to how we view the timelines, given the data inadequacy?

Mr. CUNNINGHAM. That is the Council's position, that's correct.

Senator RUBIO. Mr. Robins?

Mr. ROBINS. Thank you, Senator Rubio.

The Council doesn't have a position per se, so I'll be reflecting on our experience more broadly, but the Mid-Atlantic Council has been through the stock rebuilding process and so our constituents, our communities, have been through it. It was very difficult and we did that jointly with the Atlantic States Marine Fisheries Commission and many of those important fisheries such as Summer Flounder. But thinking back on back on some of these experiences, such as dogfish, when we rebuilt the spiny dogfish stock, the first action was to essentially close the fishery because it could be rebuilt within 10 years, but only at an extremely low level of catch, and so that fishery was essentially all but wiped out in the course of the stock rebuilding process in that 10-year period.

I think the other exacerbating fact here is the fact that a lot of times, stock growth and stock rebuilding hinges on environmental conditions that facilitate recruitment and growth into that population. To the extent that those environmental variables are outside of our control, I think it would be helpful to have some flexibility to deal with those types of changing or adverse environmental circumstances when a council is trying to rebuild a stock, so some targeted flexibility, I think, could be in order.

Senator RUBIO. At the core of all the testimony today has been the need for better data and better research. At the end of the day, we're making decisions here sometimes with things that are 4 or 5 years old and it's impacting not just the livelihood of people who

live off of these industries, but quite frankly, on the recreational side; sometimes, we forget the economic impact that that has. I mean, I know in Florida, but I think this is true around the country, people pay a great amount of money, then stay at hotels and bring their boats in and take their families out, and it's also just part of the culture of the place, I mean, it's part of, certainly, the culture in South Florida and one of the greatest experiences I've had with my children is the ability to go out and fish and I'd hate to see any of that diminished at any point.

I say all of that as a preface to the fact that one of the common practices now that the administration has is to divert in their annual budget the Saltonstall-Kennedy Funds that are received by NOAA. They would divert that away from the authorized uses and toward the agency's operation and research fund. So I guess my question is, have you spent any time talking about the diversion of those funds to the extent that they undermine the availability of those funds for more research? Shouldn't those funds go to their intended purposes and be appropriated, be used, so that NOAA can conduct more fishery research?

Mr. BULLARD. I'd assume that question is for me.

Senator RUBIO. Sorry, anybody on the panel could take it first. I know it's—

Mr. BULLARD. We expect that Saltonstall-Kennedy will have funds this year for grants \$5 to \$10 million, and as you know, Congress has allocated a significant portion of Saltonstall-Kennedy for basic research, for stock assessments and cooperative research, in the past, and if it's one thing I heard in the listening sessions that I've mentioned, it has been the need for stock assessments and basic science and frequently people saying that we need more frequent stock assessments. So Congress has used a portion of Saltonstall-Kennedy to fund that through operations and research, and so if the Congress wishes for Saltonstall-Kennedy Funds to be used for other purposes, then we're going to need to find other sources of money for stock assessments, which is the most basic thing we do for management plans. I mean—

Senator RUBIO. Clearly, you've heard the need for more funds—this research costs money.

Mr. BULLARD. Couldn't agree more, but every—

Senator RUBIO. But you're saying you just need Congressional authority to do that?

Mr. BULLARD. The building block is the stock assessment; that's what everything else is based on.

Senator RUBIO. So your testimony is that we would need—what you're asking or what you need in order to be able to do it that way using these funds is more Congressional authority to spend more of this money on the research component?

Mr. BULLARD. The research is the fundamental building block and cooperative research, I mean, we applaud that, the intention is great.

Senator BEGICH. Can I ask quick and then I'll go to Senator Ayotte—Mr. Bullard, could you give us maybe again for the record, not right now, but maybe the last 5 years of that Fund and how that has been used? It can be in broad categories for now and then if there is additional information that maybe Senator Rubio or oth-

ers might have on it, but maybe for the Committee, for the last 5 years, the broad use in category; if you could present that, that'd be good.

Mr. BULLARD. The last 5 years? Yes.

Senator BEGICH. The last 5 years. I'm picking that date; I don't know if Senator Rubio—does that sound okay?

Senator RUBIO. Yes, that's fine.

Senator BEGICH. OK, that gives us a little range. Thank you.

Mr. BULLARD. We'll get that to you.

Senator BEGICH. Senator Ayotte.

**STATEMENT OF HON. KELLY AYOTTE,
U.S. SENATOR FROM NEW HAMPSHIRE**

Senator AYOTTE. Thank you, Mr. Chairman.

Administrator Bullard, I'm really troubled. As you know, not only myself, but the New England delegation in January asked for approval of interim measures for 2013 for Gulf of Maine cod and haddock and you wrote back in January 14, 2013 and said no, we could not have interim measures for the Gulf of Maine cod and haddock, and really, the end result was, just to use a couple numbers, was that the New England Fisheries Management Council then had no choice as a result of your denial of interim measures but to vote on January 30 to approve unprecedented cuts, just decreasing the overall quota for Gulf of Maine cod by 78 percent for the years 2013 to 2015, and to put that into perspective, that means fishermen's allocation has been reduced from 6,700 metric tons in 2012 to 1,550 metric tons beginning on May 1 of this year. I don't know a business that can go from 6,700 tons to 1,550 tons, a 78 percent reduction, and survive, and this is a matter of survival for an honorable and noble profession in New Hampshire.

New Hampshire fishermen, many of them have this in their families; they have fished the waters, they believe very firmly in sustaining the stocks because it's part of their livelihood, and yet, they have not been given the opportunity to even transition; it's just been drastic, the impact that they've felt.

And it really bothers me, and so I want to ask you, when I look at national standard eight of the Magnuson-Stevens Act, NOAA is directed to sustain both fishing stocks and fishing communities. What actions are you going to take to sustain our fishing industry in New Hampshire, and how do you expect the small boats to survive? In some ways, it's almost the implementation of too big to fail in the fishing industry, the way this is working out for our small boats. So I just don't know a business that can go with a 78 percent reduction and survive. So can you help me with this because this is just something that, you know, I've gotten to meet many of them, it just really bothers me and it just seems to me that they care deeply about what they do, we're proud of them, and yet, so many of them are going out of business.

Mr. BULLARD. Senator, I assure you, it bothers me too. I come from a fishing port and the condition of cod stocks in New England is something that keeps me up at night as well, and I wrestle with it. And especially, the situation in New Hampshire, a state that had six processing plants and is down to one, Yankee Co-Op. It is something that I thought long and hard about when we adjusted

the closure due to Harbor Porpoise at the request of the sector managers up there, persuasive to me at any rate, request.

I think that in the long term, the answer is what can we do to rebuild the stocks, and the decision made by the Council in January to make that 77 percent cut, a courageous vote, is made to rebuild those stocks. Now, long term is one thing, if you can't get to the long term because you go out of business, then what difference does it make——

Senator AYOTTE. Correct, and that's what's happening and I don't fault the—I really don't fault the Council for this because basically, the denial of the interim measures, I don't think that they had a lot of choice at that point. And so, I guess I don't understand the decision why we couldn't at least be granted——

Mr. BULLARD. Extended interim measures——

Senator AYOTTE. Extend them, because you do have a dual purpose under the Magnuson-Stevens Act; it is, and seems to me, that it's so dramatic what is happening to these fishermen, that they can't even plan. Just basically, many of them just had to go out of business.

Mr. BULLARD. And so, when I did my best to explain it, I said that there were two reasons to deny the interim measures. One was the legal reason, and when we granted interim measures 2 years ago, we said we could do that; we found flexibility where many people thought there wasn't, but we said we could only do that for 1 year. We made it very clear in granting that, that it was 1 year and we did that and we said that we hoped that was a warning that allowed people some preparation to do that, but that it was for only year only and that we could not grant that for two years. So there was a legal reason. But the second reason was that the stocks, we couldn't, from a biological standpoint—the cuts needed to be made, and so, that's the other reason to do it.

Now we still—there are other fish out there, and we are working very hard with the fishermen to find ways to get people through this. I met yesterday with Secretary Pritzker. She is a businesswoman. She looks at this same issue the way you do: how do you survive this cut in cod, in Gulf of Maine haddock? How do you get through this tough time?

Senator AYOTTE. And as you can imagine, this was on the top of my list when I met with her as well.

Mr. BULLARD. Yes, I'm sure.

Senator AYOTTE. Her confirmation, because how can you survive?

Mr. BULLARD. And other members of the delegation, how do you get through this? And as I've met with fishermen, they say the answer is we know how to catch fish. So there are other fish. How can we do this? How do we solve the problem? If we can't catch cod, if we can't catch Gulf of Maine haddock, if we can't catch yellowtail flounder, there are other fish. If they don't sell, if pollock doesn't sell for the same price as cod, what can we do to catch the fish that are out there? What can we do to get the price? So we have developed with the industry, with others, resources, and what Secretary Pritzker said yesterday is I will do everything to help you, John, reach out to other agencies, state and Federal, and the industry and NGO's, anyone who can bring something to the table, to help people get through this difficult time, either by catching the fish

that are out there in abundance and build markets, or to get relief. I know the Senate has moved along disaster assistance, whatever can be done to help people get through these difficult times while we rebuild stocks. I'm trying to not leave any stone unturned to help people get through this time while we rebuild these stocks. That's the answer, though, rebuilding the stocks.

Senator AYOTTE. I know that my time is up. I just want to say two things. Number one, I disagree with the legal interpretation.

Mr. BULLARD. OK.

Senator AYOTTE. I think that you could have granted the interim measures, but let's put that aside for a minute.

Mr. BULLARD. Yes.

Senator AYOTTE. I think this goes to Mr. Cunningham's point that he made earlier, making sure that we have good information because I know that there's a lot of dispute in terms of what data is being used to implement the catch shares program that is having an impact on the fishermen.

And so, finally, my final point would be if we do need to give flexibility under the Magnuson-Stevens Act, to make sure that there is a path that is more sensible, that we can also sustain the stocks, but not put people immediately out of business like that. We've got to do that.

So I know my time is up and I thank the Chairman for the latitude, and I will probably stay because I do have a few more questions. Thank you.

Senator BEGICH. Thank you very much.

Senator Blumenthal.

**STATEMENT OF HON. RICHARD BLUMENTHAL,
U.S. SENATOR FROM CONNECTICUT**

Senator BLUMENTHAL. Thank you very much for being here today, every one of the witnesses.

Thank you, Mr. Chairman, for having this hearing, and thank you to my colleague from New Hampshire for articulating so well a number of the concerns that I have shared for many, many years, in Connecticut. As a matter of fact, as Attorney General, I took legal action because this system is such a failure, an abject failure, over many years in upholding the very interests that you have expressed in your testimony, Mr. Bullard, and I don't blame any one of you because it really is the system and the lack of sufficient, reliable data, and you make reference to it in your testimony, Mr. Bullard, the need to improve the science that is so essential in this area, the estimates of stocks, the assessments that go into the conclusion that there has been overfishing and the need for rebuilding, and how that rebuilding should be undertaken so that it maximizes the interests of recreational as well as commercial fishermen.

So my question to you is really more specifically what you think can be done, what should be done, to change this system?

Mr. BULLARD. Well, I think there's a lot in the system right now that works. I think the catch limits that make us face the music that was instituted in 2007 in Magnuson is an important part, important improvement, in Magnuson. I think it is a very good part of the system. I think I wouldn't change that. So what would I change? Science can always be better. Counting fish is difficult

business and communicating science is also very difficult. Dr. Bill Karp, at the Science Center, has worked very hard to reach out to fishermen, to involve fishermen, but that can always be made better. The way we involve fishermen, the amount that is done, the resources available for cooperative research, that can always be improved.

I think the impacts of climate on fishing is something that—I'm not a scientist, but how we understand the impacts that climate is having on the system can be made better and that's something that can be made better. I think the way we manage and introduce ecosystem-based management and how that works with Magnuson Act, where Magnuson is based on managing single stocks and, again, related to climate change, the advantages that ecosystem-based management has when you're dealing with something like climate change—

Senator BLUMENTHAL. But let me just, if I may, interrupt.

Mr. BULLARD. Yes.

Senator BLUMENTHAL. Because I want to focus on the science issue. You know, the system may work well in some ways, as you suggested, but it has put out of business many, many fishermen in the State of Connecticut; I suspect the same is true in New Hampshire, so we're not just talking about an abstract, speculative danger on the horizon. Some of this harm is already history, unfortunately. But, for example, a lot of the information that provides the basis for judgments made about rebuilding and shortages and overfishing and so forth are the result of observers. What kind of checks are there on the information that's provided for observers and what kind of additional checks could there be?

Mr. BULLARD. Well, I think that the system that doesn't work for groundfish has worked very well in scallops, it's worked very well in a lot of fisheries that have rebuilt, and so I think you have to look at why does a system work really well in most of the fisheries, the same system that you're criticizing, works so well in generating jobs, in generating economic activity, but—

Senator BLUMENTHAL. But where it's failed, why has it failed?

Mr. BULLARD. Yes, why has it failed in one place and worked—

Senator BLUMENTHAL. That's really why I'm—that's the question I'm posing.

Mr. BULLARD. Yes, and so—and I don't have a good answer for why something works so well in the majority of fisheries, but in New England groundfish, the important, iconic fishery that defines New England, why has it failed in this one iconic fishery?

Senator BLUMENTHAL. Well, there may be more than one.

Mr. BULLARD. Yes.

Senator BLUMENTHAL. But I think that, really, the challenge for all of us, most especially for you because it's your—

Mr. BULLARD. That's right.

Senator BLUMENTHAL.—job to suggest to us how this system needs to be changed because it may be failing in just a few, it may be failing in more than a few areas, but wherever it fails, it is a failure that has powerfully damaging consequences to America and to the industry, so my time is expired, but again, thank you and thank you, Mr. Chairman.

Senator BEGICH. Thank you very much.

I know, Senator Ayotte, you have to leave; you wanted to make one quick comment about your questions.

Senator AYOTTE. Yes, I appreciate it.

I'm going to be submitting a question for the record, particularly to you and Mr. Cunningham, to get your perspective on what changes you think need to be made to make sure how we can improve the Federal Government's role in the fishing management area, probably a little more specific than Senator Rubio's; I appreciated his questions, but we really need your advice on this because it's just unacceptable where we are. So thank you, Mr. Chairman.

Senator BEGICH. Thank you very much, and again, that's the purpose of our hearing is to get as much information started on the table and as we move forward to the reauthorization because we need thoughts and ideas.

Senator Markey, thank you very much. Welcome to your first subcommittee meeting here on something I know is dear to your heart and that's the oceans and fisheries, so thank you very much. We have 5-minute rounds and you're the next person up and then we have a group right after this. So please.

**STATEMENT OF HON. EDWARD MARKEY,
U.S. SENATOR FROM MASSACHUSETTS**

Senator MARKEY. Thank you, Mr. Chairman, very much, and I'm very sorry that I was late for this important hearing.

New England is the home of America's first fisheries, so it is fitting that this subcommittee begins its work to reauthorize Magnuson-Stevens Fishery Conservation and Management Act by hearing from New England fishermen.

Massachusetts has a long, proud and prosperous history based on the bounty of the ocean. I look forward to working with fishermen, their communities and this committee to ensure Massachusetts has a long, proud and prosperous future for fishermen and our coastal communities.

But right now, that future is in question, as our region's iconic fish and fishermen are struggling to survive. Many of our coastal communities are facing an economic disaster. The destruction is not as quick or as clearly delineated as the path of a tornado and we've had more warning than hurricane forecasts provide, and like drought, it may persist for multiple years, but it is still a disaster.

Just as the Nation comes together to help the victims of tornados, hurricanes and droughts, we must help our fishermen in their time of need. I will continue to work with my colleagues in Congress for emergency fishing disaster funding, and with the Obama Administration, to explore every option available to help Massachusetts fishermen, their families and their communities, weather the current storm and steer into calmer waters where fishermen can maximize the harvest of healthy species.

Let me ask this, Mr. Bullard, I appreciate the efforts that you and Mr. Karp at the Science Center are making to help our New England fishing communities through the current disaster to a more sustainable future, and I am glad to hear that helping fishermen is a priority for the Department of Commerce, and I look forward to working with you and her to address the disaster that

Massachusetts fishermen and coastal communities are experiencing.

Mr. Bullard, you mentioned in your written testimony that the President's budget requests for Fiscal Year 2014 include \$10 million increase for NOAA to fund research on the impacts of climate on fisheries, with the focus on Northeast groundfish. What does NOAA hope to accomplish by undertaking this research and how could that help improve stock assessments and ultimately benefit fishermen?

Mr. BULLARD. Thank you for your question, Senator Markey. I think, as I've mentioned, I'm not a scientist, but I am very concerned with the effects of climate on fishing. Twenty years ago, all you had to do in fishing in the Northeast is really think about how you managed overfishing; now, I think climate is something that exerts more and more of an impact and fishermen are the first who can tell you that. They're out there, they see temperature changes, they see fish stocks moving north and east offshore and they see the impacts. They don't have PH meters, so they're not as aware of ocean acidification or its impacts, but they're certainly going to be the recipients of those impacts. And today, as a matter of fact, in Providence, NOAA is hosting a workshop to understand the scientific gaps and understand this issue. There is, in the President's Fiscal Year '14 budget, \$10 million for this, and I think that what Dr. Karp has made very clear is that we need, despite all of the pressure to focus on stock assessments, stock assessments, stock assessments, we need more resources to understand the drivers, the climate change, water temperature, current change, ocean acidification, are going to have on fish stocks, on fish biology, on the development of larvae, and I hope Congress can support this part of the President's budget because it's going to provide insights that are going to help us manage fisheries and ecosystem change, minimize the economic disruption on fisheries, and so your interest is welcome.

Senator MARKEY. Mr. Cunningham, in your written testimony, you indicate that there are some provisions of the Magnuson-Stevens Act that limit the ability to manage fisheries using an ecosystem approach; I would ask that you provide to the Committee and to me the specific provisions you think hinder ecosystem management and your suggestions of how to improve them.

Mr. CUNNINGHAM. Well, certainly one of the issues with the way that the statute is written versus how you would manage under ecosystem-based management is the regions would be totally different than they are currently set up today. They may span areas that include two of the regions, and from a management standpoint, putting into the Act some ability to manage more, whether it's on regionally or whether the councils themselves have much more ability to jointly manage stocks, those comments were really directed at things from the management standpoint, rather than what John was talking about on the science side of things.

Senator MARKEY. So would you provide that information in writing to the Committee and to me as well, please?

Mr. CUNNINGHAM. Certainly. Glad to.

Senator MARKEY. Thank you, Mr. Chairman.

Senator BEGICH. Thank you very much, and I know—again, thank you for the panel. We always have more questions than time and I know several of us, I just made some notes to myself of questions I'll be submitting to you all for some additional follow-up, but I want to thank you; I know other members will have the same thing.

If we can, we want to dismiss this panel. Again, thank you for your testimony. Thank you for being part of this and we have the Panel 2 to be put up next. Thank you all very much. We'll take just a second here to change out, folks. Thank you for your attendance. [Pause.]

Senator BEGICH. And as the next panel is coming forward, just a note to the members: there's a noon vote, so we will attempt to get through all the testimonies as quickly as we can, and then if there's time allowed, we'll do questions. I'll forego my questions for other members if they would like to ask.

For the five members, can you go ahead and please be seated; just sit and they'll put a nametag in front of you. There we go.

Again, thank you all very much for your attendance. I'd like to start and just, again, go down the panel; we'll go again from this side over and allow you your 5 minutes of testimony. Again, we appreciate your efforts to be here to help us move forward on the reauthorization of Magnuson-Stevens.

Mr. Nick, is it Muto?

Mr. MUTO. Muto.

Senator BEGICH. Chairman of the Cape Cod Commercial Fishermen's Alliance. I'll have you up first and there's the button there on the pad there for the microphone you need to turn on; if it turns the light on, that should work. Just tap the microphone, make sure it's on. Perfect. You are on first. Thank you again for being here. Thank you.

STATEMENT OF CAPTAIN NICK MUTO, CHAIRMAN, CAPE COD COMMERCIAL FISHERMEN'S ALLIANCE

Mr. MUTO. Thank you, Mr. Chairman.

My name is Nick Muto. I'm a commercial fisherman from Chatham, Massachusetts. I've fished for nearly 15 years and have participated in just about every fishery we have on Cape Cod, from weir fishing in Nantucket Sound to groundfishing on Georges Bank. I've fished with just about every high-line captain in our community, and in 2009, I made the jump from crewman to captain, took on a tremendous amount of personal debt and risk and went out on my own. I now own and operate a lobster boat and I also fish for striped bass and dogfish. In the winters, I fish on another Chatham boat that fishes for monkfish and skates a hundred miles from Chatham.

I also serve as Chairman of the Board of the Cape Cod Commercial Fisherman's Alliance, which was formerly the Cape Cod Commercial Hook Fisherman's Association. Our organization was founded over 20 years ago by independent, small boat family fisherman on Cape Cod, and I appreciate the opportunity to speak to this committee here today.

When I started fishing in 2001, there were still dozens of boats landing codfish. Day in and day out, we'd land 6,000–8,000 pounds

of fish until we couldn't really do it anymore. Cod was our mainstay and it had been for centuries, and today, I get a text or a phone call sometimes, anytime somebody lands more than a few hundred pounds of codfish and people actually get excited about that. You don't see the thousands of pounds of fish like we used to.

We have a community fishing quota. The codfish are worth money, but we can't catch them and they're not out there, and to me, that's the major disaster in our community, and as I talk to other fishermen and look at the daily auction report, it seems to be that the story's much the same throughout New England.

Over the past decade, I've also seen our traditional weir fishery for squid, scup, mackerel and menhaden in Nantucket Sound go from a thriving and profitable one to one that's almost extinct. This fishery is one of the oldest in the country and relies on healthy populations of forage stocks in shore and it hasn't been from too-tight regulations that's destroyed this fishery, it's that we've depleted our bait stocks to the point that it's not even viable to set the traps anymore. The traps that used to be overflowing with fish are now completely empty, and that means there is almost nothing in our inshore waters to catch and fish like cod, striped bass and tuna have nothing to eat.

When we allow our forage base to be depleted like it is now, particularly in the inshore areas, we should not be surprised that when all the fish that rely on that bait don't rebuild. Fishermen have focused on the understanding, the important interactions between these fish species and we need to have our managers to have a similar understanding of these interactions. They need to manage the ecosystem as a whole and protect these forage stocks.

I bring up these fisheries not to make the whole thing seem hopeless, but to describe the nature of the disaster that we're facing. Congress can help, but not by rolling back regulations, but by renewed commitment to the rebuilding of these stocks so my generation has a future in this industry. The Magnuson-Stevens Act, I believe, is the cornerstone of that commitment and is essential to turning around fisheries in New England, and those rebuilding efforts, I believe, depend on accountability. The good old days of fishing when you could just go out and fish to your heart's content and come home, those are over, and right now, today's managers, we need real-time information and that means reliable monitoring and catch reporting, and unless we can account for how many fish are being taken out of the ocean, we're not really managing, we're guessing. We need to rely on tools like electronic monitoring to achieve these goals and I think there's funds for this and other changes in Saltonstall-Kennedy.

Another critical part of improved management is mandating annual assessments for our commercial stocks, and there's simply no way to effectively manage with annual catch limits without annual fish counts. With old information, we can't protect the stocks that need protecting or reap the benefits of management measures that actually work.

Fishermen on Cape Cod take great pride in our community, in our traditions, our independence and the idea that we've received

something from our fathers and our grandfathers and are going to pass that knowledge on to the future.

The transition to new management systems, if done wrong, can put communities like my own out of the game from the start, unless we have the tools to protect ourselves and preserve access to the fisheries we've always depended on.

By working more closely together, we can expand the support and kinds of innovative solutions like the Cape Cod Fisheries Trust and other permanent banks that small fishing ports like ours around the country are already building, and I believe Congress should be looking for every opportunity to support these efforts.

It's no secret that we're facing a disaster in New England. The ground fishery is in a freefall and codfish that used to support our fisheries and our fishermen are on the verge of a collapse and we need to make changes.

I believe the Magnuson Act is a solid foundation for moving forward and we need to build off it and improve it, and I think we can. I wouldn't be here today if I didn't believe we could, and I believe the future of our fisheries, that we can make the changes, and the success of my business depends on it. And I appreciate your time and listening to me today and welcome any questions.

[The prepared statement of Mr. Muto follows:]

PREPARED STATEMENT OF NICK MUTO, CHAIRMAN, BOARD OF DIRECTORS,
CAPE COD COMMERCIAL FISHERMEN'S ALLIANCE

Chairman Begich, Ranking Member Rubio and Members of the Subcommittee, my name is Nick Muto, I'm a commercial fisherman from Chatham, MA. I've fished for nearly 15 years and have participated in just about every fishery we have on Cape Cod from weir fishing in Nantucket Sound to groundfishing on Georges Bank. I've fished with almost every highline captain in our community. In 2009, I decided that it was time to make the transition from crewman to captain, and I took on a tremendous amount of personal debt and risk to go out on my own.

I now own and operate a 36 foot fishing vessel that primarily targets lobster, but I also catch dogfish, and striped bass. In the winters, in addition to doing trap work, I fish on another Chatham boat that targets monkfish and skates 100 miles to the south.

I also serve as Chairman of the Board of the Cape Cod Commercial Fishermen's Alliance (formerly the Cape Cod Commercial Hook Fishermen's Association). We are an organization founded over 20 years ago by independent small-boat family fishermen on Cape Cod. We now work with over 100 commercial fishing businesses annually catching more than 12 million pounds of seafood worth millions of dollars each year. These businesses support hundreds of fishing families and form the backbone of our area's coastal economy.

I appreciate the opportunity to speak with you today about the future of our fisheries.

Lack of fish means lack of opportunities

I started fishing commercially in 2001, and I'm now one of the younger captains in our port. When I started working on groundfish boats, there were still dozens of trips of day boat codfish coming across our pier daily. We'd bring in 6,000 to 8,000 pounds of cod a day for weeks until the tide ran too hard to fish and we got a few days off before starting again. Almost every boat fished in multiple fisheries over the course of the year, but cod was our mainstay and had been for centuries. Today, I get a text or call at home anytime someone lands more than a few hundred pounds a trip. People get excited about that little now. It's not that we don't have the quota; it's not that we can't get paid for them; it's that the codfish aren't there to catch! To me, *that's* the disaster in our community. And as I talk to guys all over New England and I look at the daily report of what's getting landed in other ports, it's clear that the story is much the same throughout New England.

Over the last 20 years, I've also seen our traditional fish-weir fishery for squid, scup and pogies in Nantucket Sound go from thriving and profitable to almost ex-

tinct. This fishery, one of the oldest in the country, relies on healthy populations of forage stocks inshore. It hasn't been too-tight regulations that destroyed this fishery; it's that we've depleted our bait stocks to the point that it's not even viable to pursue it. Traps that used to be overflowing with fish are completely empty! That means that there's almost nothing in our inshore waters to catch, or for fish like cod, striped bass and tuna to eat.

When we allow our forage base to be depleted like it is now, particularly in inshore areas, no one should be surprised when all the stocks that rely on that bait don't rebuild. We need to manage the whole ecosystem. To me, that means we need to pay attention to the way these fish interact in the water. Fishermen have focused on understanding those interactions ever since the first fisherman ever set a net; it's time for our managers to catch up to fishermen in recognizing the importance of managing the whole ecosystem.

I bring up these fisheries, not make the whole thing seem hopeless, but to help describe the nature of the disaster we're facing. We need help! But the help we need isn't pretending our fish stocks aren't depleted and trying to roll back regulations. We need a renewed commitment to rebuilding these stocks so that my generation has a future in this industry. That commitment is the cornerstone of the Magnuson-Stevens Act and it's essential to turning our fisheries around in New England.

Accountability, monitoring and enforcement

Those rebuilding efforts depend on accountability. There are still plenty of people around that remember the 'good old days' before regulations when a guy could go out, fill his boat and do it again the next day without ever worrying about calling in or filling out a trip report. But those days are gone forever. Today, to manage to annual catch limits we need to have systems for monitoring and catch accounting that track information in real-time and feed it into our management decisions. Unless we can reliably account for how many are being caught, we're not actually managing our fisheries to ACLs.

But, as we build these monitoring systems, we need to keep in mind what our fisheries and vessels look like. I fish all winter on a small boat with three other guys. We steam over 100 miles each way, often through terrible weather, to the fishing grounds. That means we steam for over 24 hours to actually fish for less than 6 hours. Unless we're able to use electronic monitoring tools, we're building a system to put an observer on a very small boat in dangerous conditions to sleep for 24 out of 30 paid hours. With all due respect to our observers, and many of them are really good, hard-working people, I've never seen a camera show up late for the boat; puke over the rail; or stay in a bunk below-deck when we're hauling gear. Electronic monitoring can get us the information we need without the cost, safety concerns or logistical hassles of trying to get the same coverage with observers. We need to accelerate using this technology for many of our fisheries; we just can't keep refusing to change how we do things.

I want to briefly discuss enforcement. Unfortunately in New England, because of serious abuses by some people at NOAA, 'enforcement' has become a dirty word. Almost any time I hear a politician talk about enforcement, they just want to rail against what happened years ago. Well, I want any NOAA employee that abused their authority in prosecuting fisheries violations punished and removed. The culture of that office had to change. But we absolutely need strong and fair enforcement in our fisheries to keep the playing field level; and, right now, I don't see it. Without solid enforcement of our fishing rules, we might as well stop making new rules. Unreported catch and landings are quietly stealing from the future of our fisheries. We've got big enforcement problem and we need to fix it.

Need for annual stock assessments

Another critical part of improved management is mandating annual assessments for almost all our commercial stocks. Earlier I mentioned our winter fishery targeting monkfish and skates. There are actually seven different skate stocks all managed under one plan in New England. Years ago, one of these stocks, the barndoor skate was declared overfished and a landings prohibition was put in place to help them rebuild. These measures worked and now both fishermen and the government trawl survey are catching more and more barndoor skates each year. When we're fishing for monkfish in the winter, we now spend most of our time picking tens of thousands of pounds of marketable barndoors out of our nets and throwing them senselessly over the side, often dead. That's just on one trip on one boat.

Why? Because we're told that a formal assessment is needed before fishermen can be allowed to land and sell even a small amount of barndoor skates. This gets us back to the problem: we haven't had an actual skate assessment since 2006 and we don't have one planned until at least after 2016. That means that for this multi-

stock, open-access, targeted fishery, we won't have an actual assessment in over a decade. That's completely unacceptable! And in the meantime, our fisheries are wasting an unthinkable volume of this product at a time when we can't afford to waste any opportunity for sustainable harvest in New England.

Without annual assessments, we can't protect the stocks that need protecting or reap the benefits of management measures that work.

Investing in our fisheries

I understand that more frequent stock assessments, better science, and expanded monitoring all cost money and that the regions need resources to make these changes. But, I think this can be done without increasing Federal spending. In the last Congress, Senators John Kerry and Olympia Snowe authored a bill that would reform the use of the Saltonstall-Kennedy (S-K) Fund. This money, taken from duties on imported fish products was always intended to provide resources for fisheries research and management. But over the years, it's been redirected into NOAA's Operations Account. This has totaled almost \$1.7 billion from 2001 to 2010 and the estimated funds for 2014 are about \$115 million.

It's time we recommitted these funds to the kinds of research projects and regional priorities like stock assessments and monitoring that they were always intended to pay for.

Strengthening and supporting seafood markets

We also have to work to build and support markets for those fish that are abundant. Don't get me wrong, Georges Bank and the waters off New England are full of fish, they just aren't the ones we have traditionally harvested and sold. Instead of cod, haddock and flounder the ocean is full of dogfish, skates and monkfish. Unfortunately, the markets for these species are extremely limited and the prices fishermen get when we can sell these fish often barely cover fuel and bait costs.

We're getting paid less now for our dogfish than we were over a decade ago, and this after fishermen took the cuts and made the sacrifices to rebuild the stock. We need congressional help to rebuild our markets. If there were greater demand and better markets, we could keep boats working in New England. And if we were paid even a nickel or dime more per pound, it would make a huge difference.

So the Fishermen's Alliance, working with other New England fishing groups, has requested the USDA to include dogfish in their commodity food purchase program. This is a good product that could be used in many Federal food aid programs and food pantries. Our request has been supported by virtually the entire New England congressional delegation who I'd like to thank. Support from this Subcommittee for USDA purchases of dogfish could go a long way in helping create a domestic demand. As a country, we have invested and worked to stabilize markets for our Nation's agricultural products; and we must take a similar approach with our domestic fisheries.

Protecting our communities

One of the last topics I'd like to comment on is how we protect our fishing communities as we reinvest in our fisheries and rebuild the resource. I hear the term 'community' thrown around all the time now. But the fishermen on Cape Cod take great pride in our community and always have. We take pride in our traditions, our independence and in the idea that we've received something from our fathers' and grandfathers' generations and are passing that knowledge on to the future.

The transition to new management systems, if done wrong, can put communities like ours out of the game from the start unless we have the tools to protect ourselves and preserve access to the fisheries we've always depended on. That doesn't mean that we can or should fight off needed changes to our management. It means we need to expand and support the kinds of innovative solutions that small fishing ports around the country are already building. Through the Fishermen's Alliance and working with a local economic development group, fishermen in our ports have built the Cape Cod Fisheries Trust, a permit bank that works to secure permanent and affordable fisheries access for independent Cape Cod fishermen. Whether it's through low-cost quota and loans to fishermen; business planning assistance to help young fishermen build stronger businesses; or local cooperative research, permit banks can offer an important tool for strengthening all fishing communities.

Congress should be looking for every opportunity to support these efforts.

Conclusion

There's no denying that we're facing a disaster in New England. The groundfish fishery, especially, is in a freefall and the codfish stock that sustained our ports for centuries is on the verge of a total collapse. We need to make changes. We need to help the guys in the groundfish fishery who took on debt and bought permits with

the promise that things would turn around and who are now losing their boats and their homes. They have no options and they are desperate. Congress has to act.

But I wouldn't be here if I didn't believe in the future of our fisheries, if I didn't believe that we can make the changes that will result in more robust fish stocks and more profitable fisheries. I've built my business and tied my family's fortunes to the success of commercial fisheries. That's why I'm here today: I'm all in.

In closing, I want to say we already have a strong law. It's not perfect; but, with due respect to the Committee Members, few laws are perfect. The Magnuson Act is a solid foundation for moving forward and we need to build off of it and improve it. I think we can.

Thank you, I'd be happy to answer any questions you have.

Senator BEGICH. Thank you very much and I know we have a good-sized panel here, so if folks could keep them as close to the time as possible, that's important so we can have some questions before our noon vote.

John McMurray, owner and operator of One More Cast Charters. John?

**STATEMENT OF CAPTAIN JOHN McMURRAY, OWNER/
OPERATOR, ONE MORE CAST CHARTERS**

Mr. McMURRAY. Thank you, Mr. Chairman, and members of the Subcommittee.

My name is John McMurray. I own a relatively successful charter fishing business in New York that employs three boats and three captains. I also sit on the Mid-Atlantic Fishery Management Council, and in addition, I'm the Director of Grant Programs at the Norcross Wildlife Foundation.

Today, however, I'm offering testimony mostly from the viewpoint of a charter boat captain, small business owner and a father.

Without a doubt, the most nerve-wracking aspect of owning a business on the water is the host of variables: fuel costs, weather, water temperatures, but nothing is more important to a sustainable business model than an abundance of fish. With that in mind, I'd like to talk about summer flounder, one of several Mid-Atlantic stocks that are currently at or near historic highs. This was not always the case. As recently as the 1990s, the population was so badly overfished that it was nearly impossible to find a fish over 2 years old.

Things began to turn around with the Sustainable Fisheries Act. It mandated an end to overfishing and required overfished stocks to be rebuilt within a timeframe certain, which in most cases, was 10 years. And so the Mid-Atlantic Council began to make a determined effort to rebuild overfished stocks. In 2006, reauthorization firmed things up with annual catch limits and accountability measure requirements. Perhaps more importantly, it required each council's science and statistical committees, rather than politically-pressured state managers and other council members, set the upper limit for allowable catch. As a result, the Mid-Atlantic Council was the only regional fishery management council where, to the best of its knowledge, no stock was overfished and none are subject to overfishing.

My charter business has undoubtedly benefited. On the water, I see more fluke than I've seen in 13 years as a captain, or my 25 years as a saltwater angler. Frankly, up until the last few years, I never even bothered with them, as the inshore was composed al-

most exclusively of young, small fish. The large ones were few and far between and you generally had to go out 60 or even 90 feet of water and fish with 10 or 12 ounces of lead if you wanted to catch them. Today, summer flounder make up a substantial portion of my business, as 20-inch fish are relatively abundant and can be caught in shallow water close to home, and it seems to be consistently good from May to September, providing something to target in the traditional dog days of summer. I'm booking a lot more trips now during what has historically been a slow time of the year.

Business interests aside, this fishery has become a recreational staple for my family. Early in May, I took my two 4-year-old twins out on their first fishing trip. First drift in a spot less than 5 minutes from where we live, my son catches a 28-inch fluke. Second drift, my daughter sticks a 24-inch fish. As is usually the case with four-year-olds, attention spans ran out, but only after several large, beautiful fish made their way into the boat. The look of pure and utter joy on their faces was worth any of the aforementioned business interests. We now try to do such family trips at least once a week, and we all look forward to them.

I brought a prop. This, ladies and gentlemen, is a rebuilt fishery under Magnuson. This is my son and my wife with the mentioned 28-inch fish. This sort of thing exists because the Mid-Atlantic Council made the hard decisions and adopted the hard caps on harvest that they recognized were essential to successfully rebuilding the stock. Sure, it was inevitable that there would be some economic pain associated with summer flounder's recovery; however, the facts demonstrate that such pain was for the most part temporary and eventually well rewarded.

In the Mid-Atlantic, according to the National Marine Fisheries Service, recreational fishermen caught 2.7 million flounder in 1989; in 2011, after the rebuilding, that number jumped to 21 million fish—that's a 700 percent increase. NOAA fishery service numbers show angler trips over the last decade along the Atlantic coast up 41 percent from the 1980s. During the rocky road to the recovery, many in the fishing industry said it couldn't be achieved; the rebuilding goals were too ambitious, the timelines were too tight, and the catch limits were too strict. But it's precisely because of such management action that we're once again catching those older, larger summer flounder.

Perhaps more importantly, I can take my family out with a reasonable expectation of catching a few keepers, and so can other fathers. The story's similar for other recreational important fish that the Mid-Atlantic Council manages, such as black sea bass and scup, but of course, the picture is not all rosy; there are indeed some management problems which I won't go into detail and list here.

While the summer flounder's recovery has been spectacularly successful, the collapse of winter flounder jointly managed by the New England Council and the Atlantic States Marine Fisheries Commission has been dismayingly sharp and complete. My business has been directly affected. In 1984, New York anglers harvested over seven million winter flounder; in 2012, they harvested only 43,000. When NMFS finally realized the depth of the flounder's distress in 2009 and closed the fishery in Federal waters,

ASMFC left the state seasons open, but that didn't matter to me because instead of fishing in March, I keep the boat up on blocks because there simply aren't any fish around.

Other species managed by the ASMFC haven't fared well either; weakfish is one of them. That has affected my business as well. As a member of the Mid-Atlantic Fishery Management Council, I can tell you that the implementation of the 2006 Magnuson-Stevens Act reauthorization, which was not easy, but it's important we stay the course. Congress should not weaken the Magnuson-Stevens Act conservation provisions just as they stand on the threshold of success, for those measures are responsible for the turnaround in the Mid-Atlantic. There are still improvements to the Magnuson that should be made; the most important is to create a funding source for the science needed to produce better stock assessments, as well as funding for improved data collection and monitoring of our managed fisheries. It's very important that we have a mechanism for funding observers, including a mechanism for cost-sharing with the industry. This is critical in our squid, mackerel and butterfish fisheries in determining herring bycatch.

We also need better protection of forage and guidance on ecosystem management. Today, the ecological consequences of ecosystem overfishing are rarely considered when catch limits are set fishery by fishery. Council needs statutory guidelines on developing regional fishery ecosystem plans that apply basic ecosystem principles to all fishery management decisions.

This concludes my testimony. Thank you.

[The prepared statement of Mr. McMurray follows:]

PREPARED STATEMENT OF CAPTAIN JOHN MCMURRAY, OWNER/OPERATOR,
ONE MORE CAST CHARTERS

Chairman Begich, Ranking Member Rubio, and members of the Subcommittee, thank you for inviting me to share my perspective on the Magnuson-Stevens Fishery Conservation and Management Act (MSA) in the Northeast region. My name is John McMurray.

I've run a relatively successful fishing charter business for well over a decade, employing three boats and three captains. I sit on the Mid Atlantic Fishery Management Council, one of eight regional fishery management councils in the United States. I'm also the Director of Grant Programs at the Norcross Wildlife Foundation, which has distributed over 30 million in equipment grants, much of that used by organizations focused exclusively on fisheries and marine habitat protection.

All of these positions, give me a unique perspective. However, today I'm offering testimony mostly from the viewpoint of a charter boat captain, small business owner and a father.

While being a charter boat captain may seem like a dream to some, it's actually very difficult and quite stressful. In this business, there are long hours (not just running trips but maintaining boats), early mornings and little time for sleep, clients who are paying what seems like a lot of money to catch fish, and daunting overhead expenses. Add to this the fact that at in my region fishing is seasonal, so most Captains, like me, have at least one other job they have to attend to. However, the most nerve-wracking aspect of this business is the dependence on a host of completely uncontrollable variables, such as weather, water temp, clarity, bait concentrations, salinity, chlorophyll levels etc. But *nothing* is more important to a sustainable business model than an abundance of fish to catch. Without such an abundance of fish, other variables matter little.

With that in mind I'll focus on summer flounder (aka fluke). Summer flounder is one of several Mid Atlantic fish populations that are currently at or near historic highs. That was not always the case; as recently as 1990, the population had been so badly overharvested that it was nearly impossible to find a fluke more than two years old. For years, fishing for summer flounder was dismal, with few fish meeting the 14-inch size limit that prevailed at the time. Things began to turn around after

Congress enacted the Sustainable Fisheries Act, which, for the first time, mandated an end to overfishing and required overfished stocks to be rebuilt within a time certain, which in most cases was ten years. At first, the Mid-Atlantic Council seemed to dismiss the conservation provisions of the new law, as it adopted a supposedly compliant amendment to the summer flounder management plan that had only had an 18 percent chance of succeeding. However, after a Federal appeals court found that plan inadequate in *Natural Resource Defense Council v. Daley*, and decided that, at a minimum, a fishery management plan must have no less than a 50 percent chance of ending overfishing and rebuilding a stock within the established deadline, the Mid-Atlantic Council adhered to the mandate of the law and made a determined effort to rebuild overfished stocks. As a result, it is now the only regional fishery management council where, to the best of its knowledge, no stock is overfished, none are subject to overfishing and just one, tilefish, remains in the rebuilding stage. My charter fishing business has certainly benefitted from the Mid-Atlantic Council's actions.

On the water, I see more fluke than I have ever seen in my 13 years as a Captain, or my 25 years as a saltwater angler. This is one fishery where I don't have to stress about abundance levels. Frankly, up until the last few years I never even bothered with them, as the inshore fishery was composed almost exclusively of small, young fish. The large ones were few and far between, and you generally had to go out to 60 or even 90 feet of water and fish with 10 or 12 oz. of lead if you wanted to catch them. Today, summer flounder make up a substantial portion of my business, as 20-inch-plus fish are relatively abundant and can be caught in shallow water close to home. They are really fun to catch on light-tackle and they are great eating fish. My clients really enjoy fluke fishing these days, and it seems to be consistently good from May to September, providing me and my clients something to target in the traditional "dog-days" of summer. I'm booking more trips now during what has historically been a slow time of the year.

Business interest aside, this fishery has become a recreational staple for my family. Early in May of this year I took my 4-year old twins out for their very first fluke trip. First drift in a spot less than 5 minutes from where we live, my son catches a 28" fluke. Second drift my daughter sticks a 24" fish. As is usually the case with 4-year-olds, attention spans ran out quickly, but only after several more large beautiful fish. The look of pure and utter joy on their faces were worth more than any aforementioned business interest. We now try and do such family trips at least once a week. We all look forward to them.

THIS is what a fishery rebuilt under the current Magnuson Stevens Act looks like, and it exists because the Mid-Atlantic Council made the hard decisions and adopted the hard caps on harvest that they recognized were essential to successfully rebuilding the stock. But those decisions were not popular at the time that they were made.

It was inevitable, given how badly summer flounder and other stocks had been overfished prior to 1996, that there would be some economic pain associated with the summer flounder's recovery, which was suffered not only by the commercial fishing industry, but the recreational fishing industry as well, which saw its seasons and bag limits shrink while the stocks recovered from decades of overfishing. However, the facts now demonstrate that such pain has been well rewarded.

In the Mid-Atlantic, according to the National Marine Fisheries Service, recreational fishermen caught some 2.7 million summer flounder in 1989. In 2011, after rebuilding, that number jumped to more than 21 million fish. That's a 700 percent increase! NOAA fisheries service's numbers show angler trips over the last decade along the Atlantic Coast up 41 percent from the 1980s. In the Mid-Atlantic alone, according to the fisheries service, by the mid-2000s, that has brought in an additional \$1.4 billion in economic activity and supported 18,660 jobs. On the commercial side, the success story is similar. Gross commercial revenues for summer flounder are up more than 60 percent since 2000, when the rebuilding plan was put in place. And, in total, all of the rebuilt fish stocks brought in, on average, \$585 million in gross commercial revenues every year from 2008–2010.

During the rocky road to recovery many in the fishing industry said rebuilding couldn't be achieved—the rebuilding goals were too ambitious, the timelines were too tight, and that catch limits were too strict. But it's precisely because of such management action that we're once again catching those larger, older summer flounder. I take clients out on fluke trips now and know that we have a good shot at landing big fish and that I won't have to fillet 14-inch juveniles. It's more enjoyable for everyone!

Without a doubt the Magnuson Stevens Act requirements for science-based goals and firm deadlines serves the general public, who own the resource, even if a few business interests may have suffered a short-term decline in profits. But, as the

aforementioned statistics show, even they now benefit from a fully restored stock. Perhaps more importantly, I can take my family out with a reasonable expectation of catching a few keepers and so can other Dads.

The story is similar for other recreationally important fish the Mid Atlantic Council manages, such as black seabass and scup. But of course the picture is not all rosy. Some management problems remain. In the summer flounder fishery, because the size limit is considerably higher than it has historically been (undoubtedly the reason there are large fish around now), the recreational discard mortality (about 10 percent of the throwbacks don't survive) is significant. This is a problem deserving of the Mid Atlantic Council's attention, and it's getting it. Yet, I can't help but note that the fishery has been rebuilt despite such discards, so overfishing was clearly a much bigger problem and, in the end, something eats those fish; they all go back into the marine ecosystem. There are also serious "fairness" issues with the state-by-state allocation system that currently exists, but that is a complicated political issue and I'm not sure any "fix" to the Magnuson Act would help.

In the black seabass fishery there are issues with uncertainty in the stock assessment and the way accountability measures are applied in the recreational fishery. Because of imprecise estimates that show big picture trends rather than year-by-year accuracy, accountability measures such as pound-for-pound paybacks are not practicable. But the Mid Atlantic Council is in the process of developing reasonable solutions to such problems. Such individual solutions should be created by the competent regional Councils as they arise elsewhere. Changes in Magnuson that will inevitably effect all fisheries to fix regional species-specific problems would be a form of legislative overkill that likely would, when applied across the board, create far more problems than they solved.

Summer flounder, and the other fisheries managed by the Mid Atlantic Council, provide a good example of how this Council took the right approach to management, setting hard catch limits and enforcing them, despite the political pressure brought by some narrow economic interests. They stand in stark contrast to the still-depleted fisheries managed by, for example, the New England Fishery Management Council, which relied on various input controls such as trip limits, days at sea, etc. in order to avoid setting poundage limits on landings, and so never effectively reduced harvest. Now truly painful measures are required because they failed to embrace effective measures—such as hard harvest caps—since the Sustainable Fisheries Act was enacted in 1996.

My business has been directly affected by such failure, for while the summer flounder's recovery has been spectacularly successful, the collapse of the winter flounder, jointly managed by the New England Council and the Atlantic States Marine Fisheries Commission (ASMFC), has been dismayingly sharp and complete. Even two decades ago, New York anglers could legally catch winter flounder throughout the year, although the "traditional" start of the fishery was St. Patrick's Day, March 17, and anglers often came home with buckets overflowing with fish. Today, we are limited to a 60-day season in April and May, and permitted to keep only 2 12-inch fish per day. In 1984, New York anglers harvested nearly 7,400,000 flounder; in 2012, they harvested 43,500. When NMFS finally realized the depth of the flounder's distress in 2009, and closed the fishery in Federal waters, ASMFC left the state seasons open. But that doesn't really matter to me, because instead of booking flounder trips in March, I keep my boat on land because, even if the law still allowed it, no one is going to book a charter trip to catch two 12-inch flounder.

Unfortunately, winter flounder are only one of the species managed, in whole or in part, by ASMFC that haven't fared very well, precisely because that management body doesn't have to comply with Magnuson Stevens Act standards, may ignore overfishing and is not required to rebuild overfished stocks. Striped bass remains ASMFC's only notable "success", but the real success took place 18 years ago after things got so bad that many states imposed a moratorium on the fishery, and it was finally recovered under a management plan that protected 95 percent of the spawning stock, a far higher level of protection than is imposed under the vast majority of the plans created pursuant to the Magnuson Stevens Act. And the current outlook for striped bass is not good. ASMFC's 2011 Stock Assessment Update states that the striped bass spawning stock biomass will fall below its threshold in 2017, which means that the stock will be overfished in four years; despite that fact, proposals to reduce harvest and stop the decline have been deferred or rejected by ASMFC's striped bass management board, pending a new stock assessment.

ASMFC rarely, if ever, takes action to avert a crisis. Unconstrained by Federal law, it waits until such stocks are on or beyond the threshold of disaster before action is taken. I have already mentioned its failure to adopt the New England Council's measures to protect winter flounder. Weakfish, which used to be a substantial portion of my spring business, provide a similar example. Today they are virtually

gone; the last stock assessment indicates that just 3 percent of the spawning stock remains, yet ASMFC refused to follow the advice of its scientists, who advised that closing the fishery was the only way that the stock might *begin* to recover by the year 2020.

Abandoning the conservation and management provisions of the Sustainable Fisheries Act, in favor of an ASMFC-like model, as some in the recreational fishing community are now suggesting, is a step back in time that will ultimately hurt both fish and fishermen. Firm rebuilding deadlines appear to be the only things that get managers, who are often under intense pressure from constituents to continue overfishing, to take action. As unpopular as they may be, hard quotas represent the only approach that has ever fixed things.

As a member of the Mid-Atlantic Fishery Management Council I can tell you that implementation of the 2006 Magnuson Stevens Act Reauthorization has not been easy, but it is important that we stay the course. The Magnuson Stevens Act is working, and this is important for my business, my community and my family. The Mid-Atlantic has turned the corner and ended overfishing, and we have rebuilt depleted fish populations like summer flounder, black seabass and scup. Such success and has improved fishing, the coastal economy, and the ocean environment for the long-term. Now is not the time to retreat from the hard work we've done and the progress we are seeing on the water.

Last year NOAA Fisheries announced that the end of overfishing is in sight, with annual catch limits, mandated by the 2006 reauthorization, now in place in all federally-managed fisheries. In a marine environment where overfishing has long been the rule, reaching a point where it is the exception is indeed a milestone. Having each council's Science and Statistical Committee, rather than politically-pressured state managers and other council members who, like myself, make a living from catching fish, set the upper limit for allowable catch results in far more effective management plans. Congress should not weaken the Magnuson Stevens Act's conservation provisions just as they stand on the threshold of success, for those measures are responsible for the turnaround in the Mid-Atlantic and around the country, and the last thing we want to do is to go back to the failed policies of the past.

Still, there are certainly improvements to the Magnuson Stevens Act that should be made. The most important is to create a funding source for the science needed to produce better stock assessments, as well as funding for improved data collection and monitoring of our managed fisheries. Black seabass provide a good example of such a need. The species' life history—they are the only protogynous hermaphrodite found north of Cape Hatteras—creates a challenge for managers. The most recent stock assessment was rejected in January 2012. Fishermen argue that there are plenty of black sea bass around and that landings can be safely increased, but given the currently available information, managers can't prudently concur. The only way to find the real answers is to dedicate adequate financial resources.

We also need better protection of forage and guidance on ecosystem management. National Standard #1 says we will prevent overfishing while achieving the "optimum yield" (OY) from each fishery. OY is defined as providing "the greatest overall benefit to the Nation," taking into account food production, recreation and protection of ocean ecosystems. In reality, though, the ecological consequences of fishing—"ecosystem overfishing"—are rarely considered when catch limits are set fishery-by-fishery. We know through experience that even what is commonly referred to as "sustainable fishing," especially of keystone predators or prey, can cause dramatic shifts in ecosystem communities. Councils need statutory guidance on developing regional Fishery Ecosystem Plans that apply basic ecosystem principles to all fishery management decisions. A new National Standard requiring that all management measures prevent ecosystem overfishing would give these comprehensive plans teeth, a change that will in turn trigger new Federal guidelines akin to what we have done to prevent conventional overfishing.

Lastly, as a recreational industry member of the Mid Atlantic Council, I would like to see statutory language that requires a periodic—every five years or so—look at the allocation between sectors to provide the greatest overall benefit to the nation, as the Regional Councils are generally uncomfortable addressing such unpopular questions on their own.

This concludes my testimony. Thank you for the opportunity to provide these comments.

Senator BEGICH. Thank you very much.

Next, we have Patrick—is it Paquette?

Mr. PAQUETTE. Yes.

Senator BEGICH. Paquette. Recreational Angler. Patrick, thank you.

**STATEMENT OF PATRICK PAQUETTE,
RECREATIONAL FISHING ADVOCATE**

Mr. PAQUETTE. Thank you, Mr. Chairman, Senator Markey.

My name is Patrick Paquette. I'm a recreational angler from the Commonwealth of Massachusetts. I've been working in various aspects of the recreational fishing industry for the past 20 years. I've served in dozens of elected positions with local and East Coast-wide recreational fishing organizations and more recently, I worked as a consultant and organizer and professional advocate, and worked with groups from Maine to North Carolina. I've been interacting with the fisheries management system for over a decade and I regularly attend the Mid-Atlantic Council, the New England Council and the Atlantic States Marine Fisheries Commission. I'm honored to be invited to testify this morning and I'm not representing anyone specific and I'm slightly grateful for that.

I want to emphasize an overarching point and that is that, in my opinion, the Magnuson-Stevens Act is working, and I can't say that enough. The results of the 2006 reauthorization are only just starting to be seen and that's a theme that I'm going to repeat a couple of times as I go through this. I do not believe MSA needs an overhaul. In fact, as you consider options and proposals over this process you're undertaking, I'd ask you to take extreme care because every single word that changed guarantees us a legal challenge at some point, and every single one of those legal challenges, in my opinion, delays rebuilding and delays and causes more pain to fishermen on the other end. Every time we're tied up in a court onshore, good management is put aside, from any side, from any perspective. And so, changes need to come slowly and carefully and I just want to urge that.

This being said, I absolutely see challenges in fisheries management that I think Congress can and should consider addressing. My good news to you this morning is that most of those issues either come from incomplete implementation of the Act; they come from failures in leadership, failures in management, and in rare occasions, failures in science.

Recreational fishing is a national pastime, but it's also an economic engine that is a major and growing source of jobs in the United States. NOAA's own Fisheries Economics of U.S. 2011 found that recreational fishermen took over 70 million trips in that year. To put that in perspective, the total attendance at Major League Baseball games was 73 million. Recreational fishing is as big as baseball.

My first marine fishing was done with my father and brothers for winter flounder. I'm not surprised I'm the second person talking about winter flounder. At times, I learned to fish on the docks of Boston Harbor or we would go to the harbor and we'd catch flounder with my dad and brothers. We'd watch skiffs populate every corner of Boston Harbor that were rented from buses from New York and New Jersey and Pennsylvania and Ohio, and they came to fill five-gallon buckets with winter flounder. Those fish collapsed, those buses stopped coming, and the kids in the city of Bos-

ton no longer grew up fishing at the Castle Island Pier for winter flounder. Eventually, we got some striped bass, but at that time, there were no striped bass and it's taken a long time for that fishery to come back. We've only recently got some more quota. That fishery wasn't rebuilt in 10 years. That fishery wasn't required to rebuild in 10 years because of the way Mr. McMurray brought it up. So even though it is coming back, it's taking too long and it's something that Congress might want to consider correcting.

The 2006 MSA reauthorization required a total restructuring of recreational fisheries data is collected and analyzed. The implementation of MRIP thus far has not gone well and is a long way from being complete. State by state, stakeholders went through the pain of instituting registries, deciding if they wanted to take on a license in their state or go with the Federal program, and we did that. Unfortunately, the first experience under this new system and the promise of a 2006 Magnuson, the first experience of an updated data collection program was a new analysis of the same old data from NMFS. We didn't get the new data stream online first; we fixed the analysis, which to many of us, seemed backward, and although there may be some internal reasons that that happened, the other end of that is that the public trust has been hurt yet again, and people like myself who try and translate fisheries management to recreational stakeholder groups, we struggle greatly in trying to explain to somebody how we decided to analyze things differently before we got the better data. It's seven years later and even Massachusetts, which is a national leader in collecting that recreational data, we're not really online yet; we've just gone online in March of this year. So the 2006 reauthorization needs to be implemented; it needs to continue to be implemented.

My community easily understands ecosystem-based management. Every child, every child is first taught: if you want to go fishing, big fish eat little fish, and to catch fish, you find the bait. That's not hard to understand, it really isn't, and we want that. We want ecosystems protected; we want the relationships between forage fish and predator fish to be included in management plans.

I'm over time so I'm going to—if I could just read one small thing, and that is just that I hope my overall message has been that, as written, the Act does a good job in ending overfishing. We have to complete the implementation of what's gone on and we need to fast track ecosystem-based management. I submitted an eight-page document where I expand on all of these. Thank you very much.

[The prepared statement of Mr. Paquette follows:]

PREPARED STATEMENT OF PATRICK PAQUETTE, RECREATIONAL FISHING ADVOCATE

Chairman Begich, Ranking Member Rubio, and members of the Subcommittee, thank you for inviting me to share my perspective on the Magnuson-Stevens Fishery Conservation and Management Act (MSA) in the Northeast and Mid Atlantic regions. My name is Patrick Paquette and I am a recreational fisherman from the Commonwealth of Massachusetts. Since my first job as a regular customer turned mate on Gloucester Party boats fishing for New England groundfish, I have spent over twenty years working in the many sub sections of the recreational fishing industry. My experience includes working my way up the chain as a mate, captain and owner of a small charter fishing vessel, working in the development, sales and marketing of fishing tackle and writing about both sport fishing and regional recreational fishing management issues for a variety of media outlets. I have served

in dozens of volunteer and elected positions in the organized recreational fishing community. More than a decade ago I became heavily engaged within the fishery management system. My body of experience has lead me to work with recreational fishing and beach access groups from North Carolina to Maine seeking a balance between sound management and conservation all aimed at benefiting the recreational fishing community.

I regularly attend meetings of both the New England and Mid Atlantic Fishery Management Councils, in addition to the Atlantic States Marine Fisheries Commission. I have and continue to serve as an advisor to various sub groups under each of these management bodies.

I am honored to be invited to testify this morning and do so representing no specific organization. In this testimony, I'll cover the unique importance of the recreational fishing community and the challenges we face, and I'll discuss significant progress that could be made without changing the law, and offer some thoughts I hope you keep in mind as you begin the process of reauthorization.

The MSA is Working

I want to emphasize the overarching point that the Magnuson-Stevens Act is working, the results of the 2006 reauthorization have only just begun to take effect and any changes at this time should be given extremely rigorous consideration. I am sure that today and through out the process, the Subcommittee will hear about problems we face in the Northeast and Mid Atlantic fisheries, but I think it's important to recognize that progress has been made toward ending overfishing and rebuilding many fish stocks is underway.

I do not believe the MSA needs an overhaul. In fact, as you consider opinions and proposals, I urge you to approach this reauthorization always keeping in mind the unfortunate reality that each and every change, even to a single word, has the potential to inspire costly legal challenges that can drag on for years. This legal wrangling always frequently puts our fish stocks, our fishermen, and the goal of ensuring consistent, healthy and sustainable long-term fisheries further away from being realized.

This being said, I do see challenges in fisheries management that I think Congress should consider during the process of reauthorizing the Act. My good news to you this morning is that many of these issues are the result of either incomplete implementation of the Act (specifically the 2006 reauthorization) or failures of leadership, management and the ability of strained resources preventing science from keeping up with an increased change in our ocean environment rather than the problems being found within the Act itself. I believe this is good news, because it is much easier to repair the plumbing than to demolish and rebuild the whole building.

The Value of Recreational Fishing in the Northeast

Recreational fishing is a national pastime, but it is also an economic engine that is a major and growing source of jobs and income, supporting small businesses along the coast. For too long, our community has been underappreciated, our economic impact underestimated resulting in our being underrepresented in Federal fisheries management, and this has played out in both allocation decisions and a lack of developing management strategies to manage our portion of fisheries in a manner that is fair and makes sense.

The latest National Oceanic and Atmospheric Administration (NOAA) "Fisheries Economics of the U.S. 2011" report found that recreational fishermen took over 70 million trips in 2011, which I think is probably an underestimate. To put that in perspective, the entire Major League Baseball attendance for the same year was around 73 million. In the Northeast, 3.7 million anglers took 22.1 million fishing trips. Recreational fishing jobs, income, sales, and the overall value it has added to the U.S. economy have all increased significantly since 2008 despite downward national economic trends.

Each individual trip has much broader secondary impacts in terms of income and jobs through associated businesses and industries including boat sales and maintenance bait and tackle, even gas and food in coastal communities. According to the NOAA report, in 2011 recreational fishing added \$1.1 billion in sales impacts in New England alone. In the mid-Atlantic, the contribution was even larger, \$3.8 billion in sales impacts which was greater than the contribution of commercial fishing.

Unfortunately, the council makeup in our regions does not reflect this reality, so we often lose out in decisions. For example, past allocations of quotas for many key species have become fossilized. We need a more equitable distribution of stakeholders on councils. Although this can be addressed without opening the Act, I fear Congress may need to intervene to fix this imbalance of representation.

The Benefits of MSA Conservation Successes

Again, while I see room for improved implementation I want to emphasize the law is working. The MSA's conservation requirements are strong and smart, and the law is working to benefit our nation, including millions of recreational saltwater fishermen like me. The National Marine Fisheries Service (NMFS) reported in its latest Status of U.S. Fisheries that 32 previously overfished federally managed stocks, like summer flounder and bluefish, have been rebuilt since 2000. While states played an important role in contributing to these successes, the MSA was a driving force that instituted a science-based approach to management in the Northeast, and it will accomplish far more if it is fully implemented.

My first marine fishing was done with my father and brothers fishing for winter flounder from the docks and piers of Boston Harbor. We would watch busloads of anglers rent skiffs or hire charter vessels in coastal communities like Quincy MA to fill buckets with winter flounder. These tourists populated hotel rooms and frequented seaside businesses. As winter flounder stocks collapsed for many reasons, the busses no longer came and the children of Boston no longer lined the docks on a weekend afternoon. Due to many circumstances, it has taken a long time to rebuild winter flounder but it is happening. In recent years catch limits for winter flounder have increased. I am convinced that without the MSA, this rebuilding would not be ongoing.

NMFS has said that the return on investment from rebuilding all Federal stocks would be \$31 billion in sales activity and 500,000 new jobs. Many of these gains would be realized by recreational fishermen and associated businesses. So I believe that Congress must heed these successes and stay strong in its current commitment to ending overfishing and restoring populations through science-based catch limits based on well informed stock assessments coupled with reasonable accountability measures that support robust rebuilding plans. We can, nonetheless, improve on the current system—especially with regard to the recreational sector.

A Changing Ocean

Fisheries in New England and the mid-Atlantic are changing at a pace that is hard for someone not regularly on the water to understand. To comply with the MSA, fisheries management must be able to keep up with this new reality. The best example that I can provide is that in the summer of 2012, black sea bass, a species associated with the Mid Atlantic and Southern New England were encountered in surprisingly catchable numbers in Boston Harbor, a place where previously it was a news item when even one of these fish was caught. The spring and summer of 2013 has seen both private anglers and for-hire operators actually targeting black sea bass and while doing so, they are now catching scup, another fish not known to be common north of Cape Cod. Another example of this is that over the last month I have heard multiple reports of cobia being caught in RI and southern MA waters.

I view these personal observations, in the context of recent scientific studies, as irrefutable evidence that climate change or ocean warming is affecting fisheries at a previously unseen rapid pace. One important way managers can react to these kinds of changes is for the management system to be producing timely catch data. The only solution is to invest in recreational management and complete the implementation of the 2006 required update to recreational data collection so that the best possible science drives management, adjustments can be made quickly, and accountability measures will be based on reliable and timely data. Managers should not be asked to choose between timeliness and accuracy of data. We need to make decisions on better than three year old data and we must collect data in the most accurate way possible. I understand this is an expensive suggestion. My response to the obvious question is to urge you to take a hard look at how much money is being spent on recreational fisheries in the North East and Mid Atlantic and compare it with both the direct and indirect economic impact of recreational fishing.

There is a fundamental difference between managing commercial and recreational fisheries. Commercial fisheries effort and catch is more predictable and easier to manage because it is based on how much fish is taken from the ocean, usually done in pounds. Recreational catch and more important to the scientific analysis, recreational fishing effort is largely determined by availability of fish stocks or numbers of fish. In essence, commercial fisheries require fish, while recreational fisheries require the opportunity to catch fish. In that sense, recreational fishery impact can seem less tangible—but as I explained earlier there is hard data to suggest that recreational fishing has a momentous effect on the economy. It may be appropriate to consider MSA provide some direction that clarifies managers can use different tools to approach this fundamental difference. Managers must have the ability to address this difference across a comprehensive management plan strategy as op-

posed to the current norm of picking some specific point and doing a calculation that in almost every case sees negative consequences for the recreational fishery. My view is that ability to address these fundamental differences exists now, however an institutionally the management system seems stuck in a “this is how we do it” state of mind. Also preventing progress is a lack of consideration of economic impacts and a lack of representation on councils, which muffles fresh ideas before they are given serious analysis, and consideration.

The Need for Improved Management of Recreational Fisheries

The 2006 MSA reauthorization recognized major problems in recreational fishing management and required a total restructuring of how recreational fisheries data is collected, how catch is monitored, and how the results are analyzed. This new program was named the Marine Recreational Information Program (MRIP). I submit to you that although most state and local communities adhered to the program, the implementation of MRIP thus far has not gone well and is a long way from being complete. State by state, community by community, managers and the public went through great pains implementing the MRIP’s required Federal registry which in most cases became a salt water fishing license. While this was going on, NMFS focused on developing new analytical methods.

Unfortunately, by choosing to develop the MRIP analysis methodology before completing development of MRIP data collection methodology, the first experiences of the recreational community under the new system involved being presented with an updated way of looking at the same data most agree is unreliable, and has failed independent scientific review because it was never designed to be used for the kind of management it was informing. Instead of building on the promise of the reauthorized Act, the result was disappointment and a feeling that our community was simply tricked into paying for the right to go fishing.

Without improved recreational data to provide the foundation, there is no chance management will be able to make better decisions. No amount of good will and outreach by NMFS will supercede our problems with data reports that in some cases do not pass even a common sense review.

My point is that damage has been done. A change to the Act will not repair this damage. What will begin the long process of repairing the recreational fishing communities trust is finishing implementation, stabilizing the data collection methodology and getting new and better data into the system. It is tough for me to consider changing a system that is not yet online after seven years.

For my community, the rubber really meets the road when management decisions get translated into accountability measures in the context of the large amounts of uncertainty or imperfection of recreational catch data. I can not repeat enough the reality that recreational fishing effort fluctuates on both actual availability of fish to catch and on the ability to catch fish. Councils definitely need to approach accountability measures based on unique situations, and that flexibility already exists in the MSA. With the exception of the fundamental constraint of not allowing overfishing, the Act allows plenty of opportunity for creative management strategies when it comes to determining recreational annual catch limits and accountability measures. It is wrong to tell a community it needs to pay a price after adhering to measures established by management.

An example of this is that In June, the Mid-Atlantic Fishery Management Council (MAFMC) adopted an innovative new policy for recreational accountability, where the Council’s management response to annual overages will take into consideration the health of the fish stock and the quality of the data. This change was largely driven by a looming crisis with black sea bass, which is rebounding in some areas so that anglers are blowing through quotas. Even though the stock is considered healthy, managers were faced with shutting down the 2014 season completely due to past overages. This problem was resolved within the MSA’s existing flexibility.

While I see stocks rebounding, severe underlying threats have not been addressed, such as the destruction of fish habitat, increasing temperatures and acidity of the sea, and the catch or bycatch of fish with ecologically critical roles that just aren’t factored sufficiently into management strategies. I have spent a great deal of my time building coalitions between recreational, small boat commercial, and environmental organizations in order to improve fisheries management and promote conservation. My experience is that the one common belief among all of these very diverse and often adversarial communities is that we need to move from single species management to something that better accounts for the interconnected relationships between species and the environment.

The Needed Transition to Ecosystem-Based Fisheries Management

The transition to Ecosystem-Based Fisheries Management (EBFM) must be accelerated. In the recreational fishing community, most of us find the concept of EBFM to be easily understood. When you are first taught to fish, every child learns that big fish eat little fish. Once you are old enough to fish on your own, the second lesson you learn is that to catch fish, all you have to do is find the bait. It's a simple fact that much of this bait—forage fish—serves as the linchpin for the whole marine food web. It is this common sense truth that has led me to dedicate many years to encouraging managers to look at forage species with a special eye. These little fish are one major part of the equation for the long-term success of our fisheries.

Bait or forage species are important locally both because of their ability to draw in and increase the availability of predator species, and also because of their role as food for valuable fish stocks. We can never expect to rebuild and achieve healthy sustainable fisheries by fishing down the food chain. And leaving more forage fish in the ocean makes common sense, and it's also the right decision economically.

A reauthorized Magnuson-Stevens Act should recognize the importance of forage species by requiring that ecosystem functions be included in scientific assessments and fishery management plans, and accounting for the critical ecological role of forage fish and the needs of predators when we set catch limits. We should require that plans to ensure these values are protected are in place before forage fisheries are started or expanded. Under the existing authority of the Act, Councils are moving forward with developing policies to improve the management of forage fish, but a legal requirement to do so would speed up this process. Earlier this year, I attended a full day forage fish panel organized by the MAFMC, which is being translated into a policy. Unfortunately, other councils including the NEFMC are lagging behind.

We also need to do a better job of tending to fish habitat and minimizing the wasteful bycatch of species of fish we aren't even targeting. The MSA currently requires that this bycatch should be minimized, and that essential fish habitat should be protected, but the Councils and NOAA have done an inconsistent and often poor job of achieving these important goals. Over the past few years the New England Council & NMFS allocated a large amount of juvenile haddock to the Atlantic Herring Fishery while and this year, two short years later raised the minimum size of recreationally caught haddock to a point where NMFS scientists developed a model that predicted recreational catch of haddock was so unlikely that the recreational community did not have to take the significant reductions being taken by the vessels that harvest haddock for food. Essentially management has turned apportion of haddock caught for food and private harvest into lobster bait. This quite frankly is an outrage to small boat commercial fishermen, for hire charter operators and private anglers alike, all done in the name of preserving one industrial fishery that provides few jobs and a small economic impact.

Just last week NMFS rejected a community wide demanded action passed by the New England Council to place 100 percent monitors and limit dumping of unwanted catch over the side on industrial scale herring harvesters. To their credit these harvesters had stepped up and offered to pay for part of the monitoring costs. The NMFS lawyers have a reason for deciding that what has been figured out in fisheries managed by other councils and was passed by the NEFMC is not allowed in New England. Once again I feel this is an issue of implementation and NMFS leadership rather than in the Act itself but Congress may need to strengthen protection of non target species so that we are getting the most value out of our fisheries.

One way Congress can make these ecosystem safeguards a reality, and consistent across the country, through the next MSA reauthorization would be by requiring that broader fishery ecosystem plans be developed and integrated into all individual fishery management plans. This way Congress could ensure that such plans are in place to account for current ecological impacts, and for consideration in future actions before opening or expanding a forage fishery can take place.

These combined steps would add up to ensure that the species we depend on for food and for recreation can rebound if overfished, and that their populations are resilient enough to prosper for generations into the future.

Conclusion

In conclusion I hope my overall message today has been that as written the act does a good job ending overfishing and does not need significant changes. I urge you to allow and even accelerate implementation of the actions required in the prior reauthorization of 2006 and to add language that accelerates the transition from single species management to a more ecosystem based system.

Thank you again for allowing me the honor of providing testimony and I am available for questions.

Senator BEGICH. Thank you very much for your testimony.
 Next up, we have Dr. John Boreman, Adjunct Professor, Department of Biology, North Carolina State University.
 Dr. Boreman.

**STATEMENT OF DR. JOHN BOREMAN, ADJUNCT PROFESSOR,
 NORTH CAROLINA STATE UNIVERSITY**

Dr. BOREMAN. Thank you, Mr. Chairman and Senator Markey. Thank you for the opportunity to testify before you today.

I'd like to focus my remarks on the scientific aspects of the Magnuson-Stevens Act as they relate to establishment of the acceptable biological catch, or ABC, recommendations, and identify where adding language to MSA can help reduce scientific uncertainty and bolster the scientific underpinnings of ecosystem-based fisheries management.

Since the enactment of MSA reauthorization in 2006, our SSC, which I chair, has worked with the Mid-Atlantic Fishery Management Council to establish ABC control rules and has successfully implemented those rules for all the stocks managed by the Council. Our rules are based on the amount of confidence the SSC has and the information contained in the associated stock assessments by using a four-level approach. Unfortunately, all of the stocks managed by our council are associated with the lowest two levels. This means that, according to our control rules, the buffer between overfishing limit and the ABC needs to be much larger because of the greater amount of scientific uncertainty associated with the assessments.

The problem that has led to the SSC's lower-level ratings of the stock assessments is related to the poor quality of input data used in the assessment models, not the quality of the models themselves. Two of the principal sources of scientific uncertainty in stock assessments and sources of frustration for the SSC are inadequate spatial coverage of surveys and inefficient or inappropriate survey gear. Supporting expansion of industry-based cooperative surveys and reauthorization of the MSA can help to address both of these major sources of scientific uncertainty. Industry-based surveys can complement the spatial coverage of ongoing fishery independent surveys being conducted by the Northeast Fisheries Science Center. The SSC would also like to see survey coverage expanded further offshore, outside the current offshore extent of the spring and fall bottom trawl surveys conducted by the Center, particularly with regard to reducing the uncertainty in stock biomass estimates for species like Atlantic mackerel and spiny dogfish.

Employment of alternative sampling gears, such as traps and long lines and mid-water trawls to complement the bottom trawling gear used by the Northeast Center can also be undertaken through the use of industry-based surveys. For example, the Northeast Center's Cooperative Research Program and the Mid-Atlantic Council's Research Set-Aside Program are testing the use of traps deployed from industry vessels in developing more robust stock assessment of stock biomass estimates for scup and black sea bass.

In development of the new system of recreational fishing surveys, known as MRIP, NOAA Fisheries is testing the use of angler-generated catch information to complement collection of information on

recreational and other types of non-commercial catch. A major drawback is that the angler-generated data, as well as the data generated by industry-based surveys, need to be collected in a statistically robust fashion or they cannot be used. Reauthorization of the MSA can help in this regard by allowing the commercial industry and non-commercial angling community to work closely with NOAA Fishery scientists in designing cooperative data collection programs that would yield high quality information. Currently, this type of close collaboration during the early stages of program development is not possible due to constraints imposed by the grants process within the Agency.

Forage fish species have become the poster children for ecosystem-based fisheries management. In developing recommendations for the Mid-Atlantic Council related to forage species and ecosystem-based management, our SSC has discovered that the definition of a forage species varies across the SSCs, as well as how each SSC accounts or does not account for forage status in their ABC recommendations to their fishery management councils. Reauthorization of the MSA can clear up confusion and inconsistencies among the SSCs by defining what constitutes a forage species and requiring that ABC recommendations from the SSCs account for the importance of forage species to the food web of the fish community.

Thank you for the opportunity to testify and I'm available to answer any questions.

[The prepared statement of Dr. Boreman follows:]

PREPARED STATEMENT OF DR. JOHN BOREMAN, ADJUNCT PROFESSOR,
NORTH CAROLINA STATE UNIVERSITY

Good morning, Mr. Chairman and Members of the Committee. Thank you for the opportunity to testify before you today on science. My name is John Boreman and I am an adjunct professor in the Department of Biology at North Carolina State University. I retired from NOAA Fisheries at the end of 2008, where my last two positions were as Director of the Northeast Fisheries Science Center (NEFSC) and Director of the Office of Science and Technology. Since my retirement from NOAA, and in addition to my faculty position at NC State, I have been Chair of the Scientific and Statistical Committee (SSC) for the Mid-Atlantic Fishery Management Council (MAFMC), a Member of the SSC for the South Atlantic Fishery Management Council (SAFMC), and Chair of the Executive Steering Committee that oversees the development and implementation of NOAA's new marine recreational fishing survey (MRIP). Also, I am currently serving as president of the American Fisheries Society (AFS). AFS was established in 1871 and is the world's oldest and largest professional society dedicated to fishery science and management, with over 9,000 members in 64 countries.

Today, I would like to focus my remarks on the scientific aspects of the Magnuson-Stevens Act (MSA) as they relate to establishment of the MAFMC SSC's acceptable biological catch (ABC) recommendations, and identify where adding language to MSA can help reduce scientific uncertainty and bolster the scientific underpinnings of ecosystem-based fisheries management.

Since the enactment of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act in 2006, our SSC has worked with the MAFMC to establish ABC control rules and has successfully implemented those rules for all the stocks managed by the MAFMC. Our rules are based on the amount of confidence the SSC has in the information contained in the associated stock assessments by using a four-level approach. Level 1 assessments account for all major sources of scientific uncertainty in the data sources and assessment methods. Level 2 assessments account for most major sources of scientific uncertainty and have a reliable estimate of uncertainty for the overfishing limit. Level 3 assessments do not have a reliable estimate of uncertainty for the overfishing level, but the SSC feels comfortable using a proxy value. Finally, Level 4 assessments contain no reliable esti-

mates for key biological reference points, including the overfishing limit. Many of the other SSCs have adopted similar rating systems for information related to ABCs that is generated by stock assessments. Unfortunately, all of the stocks managed by the MAFMC are associated with either a Level 3 or Level 4 assessment. This means that, according to our control rules, the buffer between the overfishing limit and the ABC needs to be much larger because of the greater amount of scientific uncertainty associated with the assessment.

Support Expansion of Industry-Based Surveys

The problem that has led to the SSC's lower-level ratings of the stock assessments for fishery species in the mid-Atlantic region is related to the poor quality of input data used in the assessment models, not the quality of the models themselves. Enhancing sampling frequency in current fishery dependent and fishery independent surveys can address some of the data quality issues, such as improving estimates of bycatch-related fishing mortality. However, two of the principal sources of scientific uncertainty in stock assessments are inadequate spatial coverage and inefficient or inappropriate survey gear. *Supporting expansion of industry-based cooperative surveys in reauthorization of the MSA can help to address both of these major sources of scientific uncertainty.*

Industry-based surveys can complement the spatial coverage of ongoing fishery independent surveys being conducted by the NEFSC; the Northeast Area Monitoring and Assessment Program (NEAMAP) survey conducted under the research set-aside program of the MAFMC is an excellent example of how industry vessels are being used to sample near shore in areas that are unreachable by the large NOAA survey vessels. The SSC would also like to see survey coverage expanded further offshore, outside the current offshore extent of the spring and fall bottom trawl surveys conducted by the NEFSC, particularly with regard to reducing the uncertainty in stock biomass estimates for species like Atlantic mackerel, spiny dogfish, shortfin squid, and longfin squid. Industry vessels could be used to expand the survey range.

Employment of alternative sampling gear, such as traps, longlines, and midwater trawls, to complement the bottom trawling gear used by the NEFSC, can also be undertaken through the use of industry-based surveys. For example, the NEFSC's Cooperative Research Program and the MAFMC's research set-aside program are testing the use of traps deployed from industry vessels in developing more robust stock biomass estimates for scup and black sea bass.

Promote Closer Collaboration between Industry and NOAA Fisheries

In development of the MRIP system of surveys, NOAA Fisheries is testing the use of angler-generated catch information to complement collection of information on recreational and other types of non-commercial catch. Although using such information is appealing to the fishing community, and would probably generate more "buy-in" to the catch and effort estimates being generated through MRIP, a major drawback is that the angler-generated information needs to be collected in a statistically robust fashion or it cannot be used. The same drawback applies to using data generated by industry-based surveys. *Reauthorization of the MSA can help in this regard by allowing the commercial industry and non-commercial angling community to work closely with NOAA Fisheries scientists in designing cooperative data collection programs that would yield high quality data.* Currently, this type of close collaboration during the early stages of program development is not possible due to constraints imposed by the grants process within the agency.

Directly Address the Need to Conserve Forage Fish Species

Forage fish species have become the poster children for ecosystem-based fisheries management. The MAFMC SSC is being encouraged by outside groups to give forage fish a special status that would result in a lower-than-normal ABC for forage fish that are directly managed by the MAFMC (such as squids, Atlantic mackerel, and butterfish). Although we are sensitive to the concerns of these groups, we have discovered that the definition of a forage species varies across the SSCs, as well as how each SSC accounts (or does not account) for forage status in their ABC recommendations to the fishery management councils. *Reauthorization of MSA can help clear up confusion and inconsistencies among the SSCs by defining what constitutes a forage species and requiring that ABC recommendations from the SSCs account for the importance of forage species to the food web of the fish community.*

In closing, I have touched on three areas where changes to language in the MSA can help reduce the scientific uncertainty in stock assessments (and thus reduce the buffer between the ABC and the overfishing limit) and help facilitate recognition of the implications of ABCs directed at individual fishery stocks to ecosystem-level impacts. Specifically, I am requesting that language in the reauthorization of the MSA: (1) promote expansion of industry-based surveys; (2) promote closer collaboration be-

tween the commercial and non-commercial fishing interests and NOAA Fisheries; and (3) directly address the need to conserve forage fish species.

Thank you for the opportunity to testify and I am available to answer any questions you may have.

Senator BEGICH. Thank you very much.

Next, we have John—is it Weisserma?

Dr. WIERSMA. Wiersma.

Senator BEGICH. Wiersma. Sector Manager, Northeast Fisheries Sector. Please.

**STATEMENT OF DR. JOSHUA B. WIERSMA, SECTOR MANAGER,
XI AND XII NORTHEAST FISHERIES SECTORS AND
PRESIDENT AND EXECUTIVE DIRECTOR, NEW HAMPSHIRE
COMMUNITY SEAFOOD ASSOCIATION**

Dr. WIERSMA. Thank you, Mr. Chairman, and Senator Markey for this opportunity to testify before your subcommittee today.

My name is Joshua Wiersma. The testimony is about the progress and ongoing challenges of transitioning to sustainable fisheries in New England and about what tools and resources or statutory refinements might be necessary to improve conservation and management outcomes.

I began working for the commercial fishing industry in New England in 2006 as an economist for the Massachusetts Fishermen's Partnership while I was finishing up my Ph.D field work in Gloucester. In 2009, I was hired as a sector policy analyst for the Northeast Seafood Coalition to help them organize New England fishermen into 12 harvesting groups called sectors. The Northeast fishery sectors varied by geographic region and gear type and I took a job in New Hampshire managing the two New Hampshire sectors, NEFS 11 and NEFS 12. We are a small day boat fleet of gill netters and small draggers. This is now my fourth year as manager and things look much different today than when I first started.

After my first year, the number of active boats fishing dropped from 36 to 26; we are down to 14 this year after a large series of cuts in our ACL, and 3 weeks ago, we were told that our fishermen would no longer be able to land dogfish as a result of the global market for dogfish crashing. So now, we're down to four boats fishing right now as I speak. And when I first started, things were bad and our first year, we qualified for disaster relief, as we experienced a 38 percent reduction in groundfish revenue via a new sector system. Today, that first year looks really good. In short, the fishing industry in New Hampshire and throughout New England is not OK today. We are in a state of disaster. Immediately, we need disaster relief aid for our fishermen to transition through this time for us. We also need help establishing different programs so we can sell surplus dogfish.

This testimony is based on my experiences helping to transition the Northeast Groundfish Fishery from a system based on effort controls to a system based on output controls. It may not necessarily represent the viewpoints of my Board of Directors, other sector members or organizations like the NSC. I do believe that some progress has been made, but progress is very fragile and we are by no means a sustainable fleet.

In terms of progress, the progress that has been made is mostly in the infrastructural transition to sectors. Seventeen sector groups were established and formed throughout New England; all official 501(c)5 non-profit groups with a mission to fish sustainability, at-sea monitoring, selection, communication and execution has been more streamlined. Dockside monitoring proved to have little to no utility and was eliminated. Data management reporting is becoming more electronic and streamlined but by no means real-time, and my reporting has transitioned from once a month to once a week. Ace trading markets have developed both internally and external to sectors. Collaborative research projects are easier to develop and execute through the organization of sectors. Risk pooling behavior and bycatch hotspot reporting behavior is evolving, which has been shown on the West Coast to be beneficial to conserve low quota stocks, and there seems to be an increased awareness about local seafood and traceability and certification.

Here in New Hampshire, we've had a lot of support from our representatives and Senators, especially recently. A thank you to Senator Ayotte and Senator Shaheen for their continued support on our many issues in New Hampshire, but we still have many challenges ahead of us. Most important, our challenge is due to the instability in ACL from year to year. These wild fluctuations have not protected the resource, play havoc on the lease prices of ACE, sometimes distorting the price so much that it costs more to go fishing than it does to stay home.

Data collection, storage management and transmission is not in real-time or automated and has been riddled with errors and transcribing and the science used for fisheries management has historically not included fishermen's observations or information about their fishing effort.

Finally, fishermen are sacrificing healthcare and safety to go to work in this most dangerous profession in the world, and now our best fishermen are exiting the fishery at an alarming rate because even our best fishermen, the ones that our nation needs fishing right now as stewards of this resource, can't figure out how to make a business plan from year to year and they can't figure out how much to invest in its future or how much to invest in their family's future.

The reauthorization of Magnuson needs to include some level of sustained stability so that fishermen stand a fair fight in the battle to consolidate or not, and fish stand a fair fight in the battle to rebuild or not. Specific recommendations include: additional strategies added to Statute 304(e)(4) that include fishing mortality rate-based strategies to simultaneously prevent overfishing and rebuild overfished stocks, but to do so in a time-frame that reflects prevailing ecological and environmental conditions; the mandate to end overfishing immediately should be replaced with a more rational and smoother mechanism to end overfishing that would employ step up or step down approach to achieving a new desired ACL; expand collaborative fisheries research and management with a focus on making it more industry-driven and research priorities set by industry members along with scientists at the government level; require more safety training for fishermen prior to going to sea to participate in this most dangerous profession; prioritize better

healthcare and shore-side support aid for fishermen; reprioritize our local seafood by establishing a national sustainable fishery certification program so that any fish caught in U.S. waters operating under Magnuson is deemed sustainable; re-determine how cost recovery for at-sea monitoring programs is recovered from sectors. I feel cost recovery should be based on the same 3 percent level used for the limited access privilege programs and levied on individual sectors, not on the fishery as a whole. Mandate that information has to flow in real time from vessel to dealer and from the dealer to sector manager and the government simultaneously. Real-time information about landings is critically important to improve efficiency, reduce transaction costs, trade ACE, manage quota and to create certainty in traceability about catch that can be used as a new source of marketing and branding.

Thank you for this opportunity to testify in front of you. It has been my honor.

[The prepared statement of Dr. Wiersma follows:]

PREPARED STATEMENT OF DR. JOSHUA B. WIERSMA, SECTOR MANAGER, XI AND XII
NORTHEAST FISHERY SECTORS AND PRESIDENT AND EXECUTIVE DIRECTOR, NEW
HAMPSHIRE COMMUNITY SEAFOOD ASSOCIATION

Mr. Chairman, distinguished members of the Subcommittee, thank you for this opportunity to testify before your Subcommittee today to contribute to your oversight of the implementation of the Magnuson-Stevens Reauthorization. My name is Joshua Wiersma. This testimony is about the progress and ongoing challenges of transitioning to sustainable fisheries management in New England, and about what tools, resources, or statutory refinements might be necessary to improve conservation and management outcomes.

Background

I began working for the commercial fishing industry in New England in 2006 as an economist for the Massachusetts Fishermen's Partnership while I was finishing up my PhD field work in Gloucester studying fisheries economics. I learned quickly that fishermen are different from academics. To adapt, I became a fisherman-economist. As a fisherman-economist I espoused the benefits of tradable fishing rights, LAPPs, fishing cooperatives and risk pools—but was also willing to question these ideas when the actual playing field didn't fit their applications, or when I started to meet fishermen who were going out of business who shouldn't be.

I worked at the Massachusetts Fishermen's Partnership between 2006 and 2009 just as the major changes in Magnuson like annual catch limits (ACLs), accountability measures (AMs), and sectors were being discussed and developed. After that, I was hired as a Resource Economist by the Northeast Seafood Coalition (NSC) in 2009 just in time to help organize New England fishermen into twelve harvesting groups, called "sectors".

To do this, fishing leaders were invited from different fishing regions though out New England for a year-long series of meetings to recruit and organize members, develop operating plans and harvesting strategies, complete environmental assessments, and completely overhaul the data collection and reporting infrastructure.

What resulted from the series of meetings and workshops at the NSC was a network of twelve sectors (NEFS Sectors), varied by geographic region and gear type, but tied together through membership to the NSC and to another newly formed entity, the Northeast Sector Service Network (NESSN). The day after NMFS approved operations plans for the NEFS Sectors on April 30, 2010, I began work as the manager for two of these twelve NEFS Sectors (NEFS 11 and 12). NEFS 11 and 12 are official non-profit 501(c)5 entities. We have a board of directors comprised of commercial fishermen and fishermen's wives, and we have a set of by-laws that can be amended from time to time. My sector members are smaller day boat gill netters and small draggers, who generally make their living fishing inshore Gulf of Maine waters.

This is now my fourth year as manager for the New Hampshire sectors and things look much different today than they did when I first started. *The fishing industry in New Hampshire and throughout New England is not OK today. We are in a state of disaster!*

This testimony is based on my experiences helping to transition the northeast groundfish fishery to be sustainable through the creation and implementation of sector management. It may not necessarily represent the viewpoints of my board of directors, other sector members, or other organizations. I will attempt to highlight some of the most important obstacles and challenges dealing with the new ACLs and AMs, and reference those challenges to New Hampshire. Finally, I will recommend changes to make the Magnuson act more flexible, so that it can better deal with and give guidance on complex bio-economic issues.

The day NMFS approved our 2010–2011 Final Operations Plans for sectors, over fishing ended, or so we thought. We were now constrained to a hard ACL on 16 different groundfish stocks. Since then, fishermen and sector managers have been learning how to navigate through all of the new regulatory change and new reporting requirements intended to satisfy the new AMs and ACLs. They have never exceeded a catch limit, but overfishing is still occurring because harvesting advice has not been accurate.

Fishermen have had to learn a completely new language based on ACLs and AMs, and spoken in terms of annual catch entitlement (ACE) and potential sector contribution percentage (PSC percent). They had to start thinking about fish in terms of live lbs rather than landed lbs because ACE is allocated in live wt. The net effect for a species like cod for example, is that a fisherman now lands 100 lbs of cod, but 117 lbs will be deducted from his allocation of ACE because it is converted back into live wt. at the docks.

This conversion is required. It is part of the accountability measures needed to ensure that the fishery stay under a hard ACL for that stock, which is calculated using the live weight estimates of a stocks biomass. To this day, I have to clarify to fishermen whether or not I'm talking in live or landed lbs. It makes a big difference. Fishermen also had to learn how to fish with zero regulatory discards. To me, this transition seemed the most natural to many fishermen. Most fishermen will tell you that the worst part about effort controlled management was the legal requirement to discard perfectly good fish at sea.

Progress has been made, and I will briefly describe some of the most important progress that I've seen in New England, and then relate that to New Hampshire. But I should also caution that progress is very fragile, and we are by no means a stable, sustainable fleet right now. I should also note that most of the progress that I refer to is progress in terms of the structural transition to sectors, but in regards to progress becoming a sustainable fishery—we are not close. New tools are needed to give Magnuson more flexibility to deal with dynamic changes in the ecosystem that may cause havoc in one part of the ocean, but leave another part untouched. New statutes are needed to end arbitrary rebuilding timelines, and new resources are needed to help our fishermen and our communities become more professional as fishermen, as public educators, and as scientific partners.

Progress to Date

- Establishment of 17 sector groups throughout New England, whose membership represents approximately 99 percent of the total history of groundfish landings. In NH, our two sectors are comprised of 54 multispecies fishing permits, collectively owned by 36 individuals, who together represent 100 percent of the Federal ground fishing industry.
- A market place for ACE trading has developed, both internal to sectors and between sectors. Trading allows us to maximize the value of our portfolio of allocated fish. In New Hampshire, fishermen prefer to buy and sell ACE with one another and to generally keep their fishing rights in New Hampshire. The rights of first refusal language written into our membership agreements give us an opportunity to do this.
- Fishermen are learning how to be much more selective at sea. Because we must stop fishing for all stocks if we run out of allocation of one stock, fishermen must utilize all of their combined ecological knowledge to help one another fish more selectively. In New Hampshire, I have seen much higher level s of information sharing and communications develop though the years.
- Data collection and reporting has transitioned from once a month to once a week. Accuracy and precision in landings has dramatically increased. My weekly reports are reviewed and compared to NMFS own weekly reports every week, and we often meet to reconcile even small differences.
- At sea data gathering, communication, and transmission are becoming much more advanced. Electronic Vessel Trip Reports (VTRs) are replacing paper VTRs, and fishermen are starting to use real time, wireless applications at sea to document by-catch hot spots. In New Hampshire, about half of our fishermen

now use E-VTR, and we have entered into a pilot project with the Gulf of Maine Research Institute to test a by-catch reporting hot spot tool for harbor porpoise sightings.

- A series of both federally funded and private permit banks have been developed to coincide with sectors. Permit banks can have an impact of the price and availability of permits for fishermen, but can also benefit local communities and sector members if used to help keep traditional fishing permits in the community. In NH, our members have generally benefited from the existence of three separate permit banks—(1) a state sponsored/NOAA permit bank run through New Hampshire Fish and Game, (2) a sector permit bank comprised of NH sector permits run by myself and my board of directors, (3) a “collaborative research” permit bank comprised of permits owned by the Nature Conservancy, who lease their ACE to fishermen that want to do collaborative research or fish more selectively.
- Risk pooling behavior has started to develop amongst sector members. For example, via sectors, two fishermen can effectively pool their allocations of low ACE species together to give both fishermen a better chance of catching more of another species. This type of behavior can be very informal, and can require nothing more than a phone call to tell me to say, “Hey Josh, Neil’s going to fish off my dabs this week in case he runs out . . . he may give me some black backs later . . .” These types of behaviors are important for a fishery transitioning to sustainable. It essentially creates de-facto insurance policies for low quota fish—increasing the likelihood that ACL for these stocks will not be overfished.
- At sea monitoring increased to a high of 32 percent the first year of sectors, but has been required around 25 percent over the last three years. Still, this is an increase from 8 percent observer coverage in 2009. Fishermen have made much progress transitioning to at sea observers on their vessels, and now have to coordinate trips with observers through a robust system of pre-trip notification, developed to randomly assign observer coverage—but in practice has seemed to be biased.
- Sectors as entities can receive creative financing and low interest loans to do important economic development and biological conservation work. For example, our NH Sectors received a grant to purchase 800 new generation acoustic deterrent devices called “pingers”. We were able to partner on this purchase with NEFS 4 (the Gloucester Preservation Fund Sector), and the Gulf of Maine Research Institute through their GEARNET collaborative research program. Together, we purchased 4800 new generation pingers—enough to over haul the entire gill net fishing fleet. This has been the largest pinger purchasing program in the world to date.

New Hampshire Community Seafood Program

An increased awareness about local seafood and local fishermen is evolving. I believe the coordination and organization of sectors, which has allowed fishermen to come together more often as a group, also allows them to think of different and creative ways to add value to themselves and to their fishery. For example, in New Hampshire, we started a community supported fishery (CSF) called New Hampshire Community Seafood. Our intent was to highlight our fishermen, share their stories, but most importantly share our seafood direct from the boat to their plate. We have found that a tremendously receptive market for this, and not just for “high value” species like cod and haddock, but also for things like “day boat” dogfish and whiting—two traditionally low valued stocks.

In New Hampshire, we are trying to address the fishery crisis by increasing the recognition and appreciation of the interdependent roles that the fishing industry and the consumer play in our local ecological economy. In doing so, we hope to provide local fishermen a fair market for all the species they catch and to provide the consumer with access to a wide variety of fresh locally caught seafood throughout the year, better insight into the supply chain that brings seacoast seafood to their table, and direct input about the choice and diversity of fish they consume.

The cultivation and nurturing of this direct relationship between local fishermen with local consumers is intended to increase demand for local seafood, to promote community awareness and engagement in marine resource issues, and to support our local and regional economies through the preservation of the livelihoods of local fishermen and the supporting of shore-side support infrastructure.

Challenges

We have made improvements in transitioning to a sustainable fishery, but like I mentioned before, most of the improvements have been structural successes in the implementation of sectors. The core challenges that we now face threaten to wipe away entire sectors and fishing communities. We can't have a fishery without fishermen. And we can't have a healthy ecosystem without fishing and without robust markets for all the fish that we catch. For example, the domestic market for spiny dogfish crashed in 1995 when the Federal government completely shut down the fishery. Even though the stock has recovered to Marine Stewardship Certification standards, the domestic market never really recovered.

For the last three weeks fishermen who land dogfish in New Hampshire and Massachusetts have been unable to go to work. Dogfish processors are back loaded, and the European market has apparently crashed. So, just in these last three weeks and even at 17 cents a lbs., the economic impact of this has already been in the millions of dollars to fishermen and their communities. This has especially affected the smaller inshore vessels, like mine, who annually depend on their inshore dogfish revenue this time of year to support their annual fishing plan. If fishermen can't land dogfish right now, they can't fish. Not much else gets caught in their nets now, and nobody wants to spend all day picking out fish just to throw them back.

This situation is so wasteful. Dogfish can be delicious if processed correctly. If bled and iced at sea, their meat maintains a tremendous quality—white, firm and sweet. Our fishermen sell some of their “day boat” dogfish filets to our CSF members at \$12 per lbs. We call it “day boat” dogfish because of the special way it was pre-processed to preserve its freshness and quality. People tell us it might be their favorite fish now. And yet, on a global level no market exists. How is this possible?

I say this to highlight the importance of allowing both the industry time to adapt to new markets, and to highlight the importance of creating new markets for sustainable, healthy fish stocks, while we give time to some of the more critical ground-fish stocks to recover. We need some time to educate our citizens about new markets, about new fish, and about new management. We need help promoting our brand as certified United States Sustainable. We need resources to help fishermen make the transition to different markets or to transition to new technology and ultimately a new way of fishing, and of thinking about fish.

Here in New Hampshire, we have had a lot of support from our representatives and senators. We are especially thankful to Senator Ayotte and Senator Shaheen for their continued bi-partisan support and recognition of the proud tradition of fishing in New Hampshire, and of the critical issues that we face here—especially as group of small family run businesses. Senator Ayotte has advocated for us since I've been manager, and has recently helped address the dogfish crisis by supporting an effort for New England fishermen to work with the USDA farm aid program to buy surplus supply. Senator Shaheen has also been very supportive of our New Hampshire fishing industry, and just recently was instrumental in appropriating much needed disaster relief money for our industry, which was declared a Federal fishery disaster by the Secretary of Commerce last winter.

We have a number of challenges ahead of us. If these challenges are not addressed via the reauthorization of Magnuson, I believe the fishery will be playing catch up for years to come and may never fully recover. The most important challenge has to do with the instability in ACL from year to year, and the inability of Magnuson to deal with changes in ACL that are orders of magnitude larger than what would have been predicted six years ago. Wild fluctuations in ACL from year to year have not protected the resource, and instead play havoc on the lease prices of ACE—sometimes distorting the ACE price so much that it costs more to go fishing than to stay home.

Specific Challenge Issues

- Rapid consolidation of the fishery. Consolidation is occurring at a rate that is not sustainable or healthy for either the community or the resource. Consolidation is a natural consequence of catch share programs, but it should be more gradual and at pace with true shadow value of fishing. Problems arise because extreme changes in ACL from year to year distort the true opportunity cost of fishing. In New Hampshire, the number of active fishing boats has consolidated down from 26 four summers ago to 4 this summer. This is a direct result of wild swings in the ACL from year to year.
- Rapid swings in the dynamics of ecosystems. We are experiencing a series of strange phenomena in the ocean that most fishermen contribute to abnormal environmental conditions. These rapidly changing conditions are more problematic under the confines of single stock management because fisheries managers are too constrained trying to maximize one stock at the expense of the group.

- Data collection, storage and management have to be in real time. We have been managing a hard TAC fishery with soft TAC data for four years. Information has to flow in real time from the vessel to the dealer, and from the dealer to the sector manager and government. It is tremendously inefficient to manage a real time fishery with week old data. Real time information about landings is critically important to improve efficiency, reduce transactions costs, and to gain certainty and traceability about catch that can be used as a new source of marketing and branding.
- Instable prices for seafood and high competition with imports. Catch share management is supposed to benefit fishermen by restoring some stability to seafood prices. Generally, this stability is supposed to result in higher prices and lower landings. However, when the year to year cuts in ACL are as high as 80 percent for a primary stock like cod, seafood buyers and processors will look elsewhere to take its place. Processors can now import a fileted cod product from Iceland and Norway; unfrozen, and delivered to their door the day after catch at a cheaper rate than if they bought it domestically. This trend can't continue.
- Non-transparent market for buying, selling, and trading ACE. Because ACE is not considered a property right of individual fishermen, the government does not have to track ACE trades on an individual level. Although this has provided some privacy benefits, it has also resulted in a marketplace with no central clearinghouse that fishermen can go to in order to gather information about ACE prices, or to lease, sell or trade ACE. ACE postings are generally done by e-mail between sector managers, who then forward the information on to members.
- No plan for industry to pay for at sea monitoring. Fishermen in New England were supposed to pay for their own at-sea monitoring coverage starting in 2012 after the transition to sectors. This has yet to happen, in large part because of the continuous cuts and costs to fishermen associated with other aspects of sector management. Also, debate still exists as to whether we should be gathering more precise data or more accurate data. In terms of distributing costs more equitably, it is better to have more accurate data, as costs would then be proportional to landings—and hence less regressive.
- Fishermen are sacrificing their health insurance and their safety as a way to cut costs and continue to participate in this fishery. Only 10 percent of all active fishermen have ever completed a basic safety training course, when every study shows that it saves lives. We are losing a standard of professionalism and pride as fishermen, and that needs to be restored.

Current Status of the Fishery

It's been four years since sector management started, and the fishing industry has not exceeded the hard annual catch limit set for any of the 16 different groundfish stocks. In fact, contrary to public perception, the commercial fleet has remained at or below the target annual catch limits even prior to ACLs/AMs being implemented. Still, the results of stock assessments continually show that mortality goals are not being met, and as a result, estimated ACLs change by as much as 80 percent from year to year, and in the case of Pollock by 600 percent mid-year! Now our best scientists admit that they have very little faith in their current models to predict and forest future stock size. If we can't accurately predict stock sizes, we can't provide harvesting advice.

And now our best fishermen are exiting the fishery at an alarming rate, because even our best fishermen—the ones our nation needs fishing to serve as stewards of this resource—can't figure out how to make a business plan from year to year, and therefore can't figure out how much to invest in its future, or how much to invest in their families future. The reauthorization of Magnuson needs to provide tools to allow some level of sustained stability in management so that the fishermen stand a fair fight in the battle to consolidate or not—and so fish stand a fair fight in the battle to rebuild or not.

Recommendations to Improve Magnuson

1. Additional strategies should be added to the statute 304 (e) (4) that include a fishing mortality rate based strategy. Such a strategy for example, achieves by definition the two principle goals of the MSA—to prevent overfishing and to rebuild overfished stocks. But, it allows rebuilding to occur over a time frame that reflects prevailing ecological and environmental conditions.
2. The mandate to end over fishing immediately should be replaced with a more rational mechanism to end over fishing that would employ a “step down” or “step up” approach to achieving a new desired ACL. For example, if the change

in ACL from an old ACL to a new “target” ACL is large, then the reduction (or increase) in ACL should be annually capped at some level not to exceed a 20 percent change from the previous year’s ACL.

3. Multiple mandates to end or prevent overfishing have made it impossible to utilize tools like “mixed-stock exception clause” so that overfishing could continue on some stocks even if it means that the threshold criterion regarding rebuilding requirements may not be met. The statutory definition of fishery at MSA (3)(13) may provide a basis for future treatment of this issue so that the mixed stock exception could be used as intended—to allow the fishery and community to survive via healthy stocks while an unhealthy stock simultaneously rebuilds.
4. Expand collaborative fisheries research and management with a focus on making it more industry-driven. Research priorities should be set by close consultation with commercial fishermen, and renewed efforts to utilize existing and to integrate new data sets into traditional science and management models needs to occur. Collaborative fisheries initiatives need to be directly tied into stock assessments.
5. The fishing world operates as a bio-economic system, where management changes that affect the biology also affects our economy and changes our community. National Standard 8 requires managers to seriously consider these tradeoffs prior to policy. This does not often happen, as managers are always playing catch up to changes in the fishery and stock assessments, and economists are always playing catch up to changes in management and policy. The intent of Magnuson should be to protect both the resource and the resource user.
6. Require more safety training for fishermen prior to going to sea to participate in the most dangerous profession in the United States. Prioritize better health care and shore side support and aid for fishermen. Begin to transition our fishery to one that relies once again on professional, well-trained fishermen.
7. Re-prioritize our local seafood by establishing a National Sustainable Fishery Certification Program so that any fish caught in U.S. waters by a boat participating under the strict rules of Magnuson is considered sustainable. United States seafood should be promoted as the gold standard for the world, and domestic markets have to be developed. Promote local markets and branding efforts, and encourage the development of community supported fisheries where fish flows direct from local boat to local consumer.
8. Re-determine how cost recovery for at sea monitoring programs is recovered from sectors. Cost recovery for sectors should be based on the same 3 percent level used for cost recovery in Limited Access Privilege Programs and be levied on individual sectors, not the fishery as a whole.
9. Information has to flow in real time from the vessel to the dealer, and from the dealer to the sector manager and the government simultaneously. Real time information about landings is critically important to improve efficiency, reduce transactions costs, trade ACE, manage quota, and to create certainty and traceability about catch that can be used as a new source of marketing and branding.

Thank you for allowing me the opportunity to testify before you today. It has been my honor. I sincerely appreciate your time and thoughtful consideration on these important issues related to transitioning to, and sustaining a sustainable fishery.

Senator BEGICH. Thank you very much. Thank you for all of your testimony.

Let me just say two quick things, I’ll turn to Senator Markey for his questions. First, I know I said on the Appropriations Committee we were able to put at this point in the Commerce Committee’s Subcommittee report \$150 million for disaster relief for fisheries failures in the Nation; we’ll see how that fares as it goes through the process. And second, interesting to note and I think Senator Markey would agree with this, we debated a House bill or a farm bill on this side and the House debated a farm bill; if we were to call it a fish bill, we would all be so pleased.

In many ways, as you sort of talked about when you had the dogfish surplus, if that was on land, we'd give you a subsidy to make sure you're taken care of. When you have a shortage, we'd call it a drought on land; in fisheries, we just call it emergency. So it's an interesting difference. The only difference is we harvest from the sea; farming is harvested from the land. It is still a food supply and food for this country and so it's an interesting debate that every meeting that I have, every hearing I have, I try to bring this to people's attention that I'm singing to the choir and the bottom line is, again, we harvest from the sea; farmers from the land and the difference is just where it is. Other than that, it feeds this country and feeds this world and so we have to create an equalization here between our on-land and off-land or in-sea food supply for this country.

So it's just a commentary I always like to make because I think we get all those economic issues if this was a—if we were on the Ag Committee right now, we'd have 20 programs solving that problem, making sure you're continuing the fish or if you were doing sugar, wheat, corn, you know, I can go through the list, so let me turn to Senator Markey for his questions and then if there's time, I'll have a couple questions, if not, I'll submit mine for the record, only because we have a vote at noon.

Senator BEGICH. Senator Markey.

Senator MARKEY. Thank you, Mr. Chairman.

I remember growing up, when we had tuna fish, the company, its slogan was "Chicken of the Sea."

Senator BEGICH. That's right.

Senator MARKEY. Brand tuna.

Senator BEGICH. That's right. Not Chicken of the Land, Chicken of the Sea.

Senator MARKEY. No, Chicken of the Sea. You know, I'm just showing how—pretty much the same deal.

Yes, whether it be fish or chicken, and here, we just find a way of treating them differently though, as you're saying: one is subject to drought and should be given emergency relief and the fishermen not considered in the same way.

So I appreciate the testimony from our witnesses today and the issues they have raised. There appear to be some areas of agreement and I think it makes sense to focus on them as we undertake the reauthorization of Magnuson-Stevens and I have a list here of five that seems to be in agreement.

One, additional support for ecosystem management. Two, taking into account forage fish, those fish that are at the base of the food chain, the need for more timely, improved and cooperative science, more transparent and timely sharing of fishing data and the possibility of a national sustainable fishery certification. So I think it's important for us to focus on those areas that are all in agreement so that we can ensure that they are in any legislation as we move forward.

Mr. Muto?

Mr. MUTO. Muto.

Senator MARKEY. Excuse me?

Mr. MUTO. Muto.

Senator MARKEY. Muto. Muto. Mr. Muto, I know you're working with the Fisherman's Alliance and you're working to find creative solutions for fishermen to the daunting challenges which they're facing. One encouraging possibility is to expand the domestic market for dogfish. Can you tell me what is being done to expand the demand for dogfish and how could this committee help?

Mr. MUTO. Quite honestly, dogfish is one of the only things we have left in Chatham, and as of the last day or two, we're not even sure if we have that; I'm waiting to see what happens when I go home.

But I do know that those 40 million pounds of quota that are our dogfish fishery, they need to come out of the ocean and quite honestly, at some sort of an appropriations, even at 30 cents a pound, a "small," \$12 million, could afford to pay for fishermen to go to work and harvest those fish out of the ocean, which could have a rippling effect to also increase the groundfish quota; it removes predators from the ocean, it removes an apex predator, somewhat of a predator to forage stocks, to codfish, to other fisheries, it removes them from the ocean. When they cut the dogfish back drastically years ago, we ran into a problem where they were just overrunning the ocean; they were destroying everything and, I mean, I think that's one thing to consider in making sure that we can remove these species from the ocean, and I think possibly a large USDA buy of our domestic dogfish and putting it deeper into domestic markets could really put a lot of guys back to work and show some glimmer of hope for commercial fishermen up and down the coast.

Senator MARKEY. Thank you.

Mr. Paquette, in your testimony, you mentioned that winter flounder stocks are now rebuilding. How do the requirements to end overfishing and to rebuild an overfished fishery operate together to ensure that fishermen can maximize the harvest of healthy species?

Mr. PAQUETTE. I'm sorry, Senator, could you repeat the question? I didn't quite understand the way you asked it.

Senator MARKEY. The bottom line is, what do the requirements to end overfishing combined with ensuring that the overfished fishery operates together as part of a rebuilding process do in order to ensure that something like winter flounder stocks are in fact now something that are rebuilding successfully?

Mr. PAQUETTE. I think winter flounder is an interesting example, and obviously, why I put it in. It was a stock that I watched crash growing up. For various reasons, I'm not in the business of blame today. And in my opinion, they took too long to come back, but they have built and I believe that one of the reasons they took too long is because there is a difference in translating Magnuson language, overfishing and stock status language with the Atlantic States Marine Fisheries Commission and it's a little bit of a complex problem, but we see in summer flounder is sort of like another which was held to the rebuilding standard of 10 years, that summer flounder rebuilt a lot faster than anybody thought; it was also given a chance to rebuild. I believe that species that we do the work on and that we don't, one way or another, push the pause button on rebuilding, I think we see it benefit us economically and jobs-wise.

And in high school, I worked on Gloucester cod boats and I can remember we got better tips when haddock came over the rail; haddock was the superstar at the time for us. Haddock today have been turned into lobster bait because of bycatch and industrial fisheries. We've seen cod stocks fall and if we don't have some limit—rebuilding didn't really happen until after it was made mandatory. When it was sort of, what was the word, optimum in the law? At earlier versions of Magnuson, when rebuilding wasn't mandatory and didn't set a limit on it, we didn't really rebuild; we tried, but we were never really successful at it. We've only seen the number of stocks that are rebuilding, and there are some that aren't and there's definitely, I have a lot of talk in my testimony about ecosystems and climate change and how it's hurting and how we have to get a handle on it, but it's clear that we have to allow Magnuson to work and I need to be forced as a fisherman to follow the rules.

Senator MARKEY. Thank you, sir. Thank you, all of you, so much. Thank you, Mr. Chairman.

Senator BEGICH. Thank you very much, and again, I'll have some questions for the record, but Mr. Muto, let me ask you a quick question, just back on the—to follow up on Mr. Markey's question in marketing, because one thing that hasn't been mentioned actually interestingly enough in the two panels is when you have an overabundance, one of the things I know, Alaska, what we did, I mean, when we had dogfish, today, you eat them as—not you, but your pets—eat them as “Yummy Chummies.”

Mr. MUTO. Yes.

Senator BEGICH. We repackaged them and made them into a different product. We get two and a half, probably three times what the value is, what it should be if it was just sold at the market because we thought of a different way of repacking. It used to be you'd get salmon strips in a cellophane-wrapped bag; now, you get it as salmon jerky, you pay more for it. Marketing, marketing, marketing. But I didn't hear anyone mention that and I'm just curious, and I know the vote has started, so I only have a couple minutes and so I just, to me, when I think of dogfish, if you have an oversupply, as we did, well, first off, no one likes to buy fish called dogfish, it just doesn't excite them, so like I said, we called it something different and we repackaged it and I guarantee you, we sell more of that product, bycatch for us, than ever before and make a lot of money on it, especially because we have not only a raw product, but we've turned the raw product into a finished product, so I think that's where part of, I think, Senator Markey was getting to, is there something more we can do, and I'm going to—I want to ask all four of you, but I'm going to go right to the economist because in theory, that's what you do, you look at markets, and so I'm just curious if that is something that comes up in your discussion with the regions.

Dr. WIERSMA. Yes. Yes, exactly and I mention it in my written testimony. One of the things that we've done in New Hampshire is started a what we call the community-supported fishery and what that is, is it's basically, if you're familiar with a farm share where people sign up for a weekly share of the farmer's catch, what they've signed up for is a weekly share of our fish.

Senator BEGICH. Right.

Dr. WIERSMA. And we include that fish dogfish, only we called it day boat dogfish because our fishermen are cutting it at sea, they're bleeding it, they're brining it and they're bringing in a completely differentiated product, a product that allows us to give them \$1.50 per pound at the dock relative to the 17 cents a pound they get when they try to sell it to the global market. You know, this has been extremely positive; our feedback we've got from our members said that it's some of the best fish they've ever eaten, and so, in my mind, when I think the global market for dogfish has crashed, yet I'm selling fillets for \$12 a pound to the local people in New Hampshire, it doesn't make sense to me and so——

Senator BEGICH. You're getting someone very excited here on the—I have feeling you're going to have a conversation——

Dr. WIERSMA. We had a conversation——

Mr. MUTO. Yes, we talked about this ahead of time; we were trying to coordinate our teams.

Senator BEGICH. He's going to go home tonight and ship it to New Hampshire.

Dr. WIERSMA. Yes, well, we have our own dogfish. I mean, we're trying to develop that market, you know, it's a slow process, but it can't crash completely, you know, as we make that transition to taking greater ownership of that resource and to rebrand it and to remarket it. You know, I don't want to change the name from dogfish; I think we can make it cool. We just need to give the time to do that for us.

Senator BEGICH. Let me ask, and maybe you all just nod yes or no because I've got to close this off because of the vote. Do you think we need to make sure in Magnuson-Stevens we do have commentary or concern or even language in there to talk about the marketing of our seafood products, not only locally, but internationally? Does anyone disagree with that, I guess? OK. It might be a little mixed, I see, but the bottom line is, we shouldn't not exclude marketing, but it should be something we should think about. OK.

Let me end there and just say—how many days are we going to keep this open?

VOICE. Two weeks.

Senator BEGICH. Two weeks? We'll keep the record open for 2 weeks for other members to submit questions for the record for response. I have some that I'll submit for the panel here because of our time delay.

Senator BEGICH. But I do want to thank all of you who are on the ground, literally, in the water, finding out what we need to be doing and changes we need to have. The common theme is that don't make drastic changes, but there are some tweaks clearly that we need to make, and I think Senator Markey laid out five of them that he summarized that he's heard and I have some, too, so again, thank you all very much for your testimony. This is one of a series that we'll be doing regarding the fisheries around our country, so as we move to reauthorization, we totally look at it from a holistic standpoint, not just one region versus another region.

Thank you all very much. This meeting is adjourned.

[Whereupon, at 12:07 p.m., the hearing was adjourned.]

A P P E N D I X

ATLANTIC STATES MARINE FISHERIES COMMISSION
Arlington, VA, August 15, 2013

Hon. MARK BEGICH,
Chairman,
Subcommittee on Oceans, Atmosphere,
Fisheries, and Coast Guard,
Senate Committee on Commerce,
Science, and Transportation,
Washington, DC.

Hon. MARCO RUBIO,
Ranking Member,
Subcommittee on Oceans, Atmosphere,
Fisheries, and Coast Guard,
Senate Committee on Commerce,
Science, and Transportation,
Washington, DC.

Chairman Rockefeller and Ranking Member Thune:

I am Robert Beal, Executive Director of the Atlantic States Marine Fisheries Commission (Commission). The Commission is comprised of the fifteen Atlantic coastal states and carries out a diverse array of programs for its members with the goal of restoring and sustaining Atlantic coastal fisheries. The Commission provides a forum for interstate cooperation on fisheries that cross state borders and thus cannot be adequately managed by a single state. Congress authorized the Commission in 1942; and granted us increased management authority in 1984 with the Atlantic Striped Bass Conservation Act, and again in 1993 with the Atlantic Coastal Fisheries Cooperative Management Act.

Since 1984, the Commission has restored many Atlantic coastal species and initiated the dialogue to address the emerging opportunities and ongoing challenges that exist for improved stewardship. As the Committee undertakes the task of reauthorizing the Magnuson-Stevens Act, it can do so with the confidence that its leadership on this and other legislation has given the states and the Federal agencies the tools and determination to continue working toward fishery resource conservation successes.

Since its enactment in 1976, each reauthorization of the Magnuson-Stevens Act has built upon past successes and altered programs to address emerging issues when necessary. Roughly six and a half years after the 2007 Magnuson-Stevens Reauthorization Act was implemented we have another opportunity to clearly observe the new fishery management structure and how it is working in the real world. The Commission believes the framework established by the Magnuson-Stevens Act and its subsequent reauthorizations is fundamentally sound, but, as with most major laws, could benefit from some minor updates. The issues of highest interest to the Commission are federal-state partnerships and data collection and management. With the Commission's unique role and history in fisheries management, we are well-equipped to provide the Committee with valuable input into the reauthorization of the Magnuson-Stevens Act. I hope the Commission can continue to be a resource to the Committee as it reauthorizes the Magnuson-Stevens Act.

Federal-state Partnerships

In the regulation of fisheries, jurisdictional boundaries divide state and Federal management authority. However, a great number of fisheries exist under shared federal-state management due to their migratory nature. In the same way that no one state can effectively manage its nearshore fisheries alone, the Commission recognizes Federal and state fishery management authorities must also work together to make management decisions for species that traverse state and Federal waters. Our primary Federal partners include NOAA Fisheries, the three Atlantic Coast Fishery Management Councils, and the U.S. Fish and Wildlife Service. Further, we have strong relationships with our sister Commissions in the Gulf of Mexico and Pacific. Our fisheries management and stock assessment processes include regional and Federal partners at all levels, from our technical committees to our management boards, ensuring consistent management across the species range. The Commission cooperatively manages seven species with our Federal partners, and together we have successfully rebuilt many Atlantic species such as summer flounder,

spiny dogfish, bluefish, scup, and Spanish mackerel. Successful partnerships must involve the states, Federal agencies, and Congress. If any of these entities are not fully engaged and supportive of the process, we will not be able to build on our past successes.

Federal-state partnerships form the cornerstone for many successful fishery restoration stories. However, there are still opportunities for improvement. Our member states feel communication between NOAA Fisheries and the states can be improved. The Commission has urged NOAA Fisheries to involve us as partners throughout the management process rather than treating us as a stakeholder group, with involvement limited to public comment periods. The states are confident that greater collaboration will lead NOAA Fisheries to more informed decisions that have greater public engagement and, consequently, acceptance. The states understand there are currently some legal constraints on pre-decisional discussions, however, the states can play a critical role in contributing fisheries science and data and providing stakeholder input for consideration as decisions are finalized. States have been conducting fishery-independent research consistently for decades and can serve as a valuable resource to enhance the available science.

The listing of Atlantic sturgeon as threatened/endangered under the Endangered Species Act is a highly visible example of a missed opportunity for greater collaboration. The states could have provided additional information and insight on the population status and biology of Atlantic sturgeon. While this collaboration may not have changed the listing decision, there would have been greater confidence among the stakeholders that NOAA Fisheries was fully informed during the process. The states also request greater transparency and collaboration, including data sharing during the development of response plans. It should be noted that since that listing, the Commission and the states have seen substantial progress in NOAA Fisheries coordinating more closely with the states, particularly with regards to its consideration of the river herring listing. It is our hope this increased coordination will continue.

There is also an opportunity for federal-state cooperation to be improved in NOAA Fisheries Highly Migratory Species (HMS) Division. The Commission is concerned about the limited opportunity for input and collaboration on fishery management plans (FMPs) developed by HMS. For example, at NOAA Fisheries' request, the Commission adopted an Interstate FMP for Atlantic Coastal Sharks to complement Federal management actions and increase protection of pregnant females and juveniles in inshore nursery areas. Following the approval of the Interstate FMP, HMS made a number of changes to the Federal management program with limited opportunity for state input and collaboration. The states' primary input opportunity has been through the HMS Advisory Panel process, where states are again treated as stakeholders. The HMS public comment opportunities frequently do not overlap with a Commission meeting to allow for the development a unified coastwide position. Given that the states are co-partners in management, the Commission would like additional opportunities for input to be provided and required for HMS activities.

On a positive note, the 2007 Magnuson-Stevens Act Reauthorization established a cooperative research program to support partnerships between the Regional Fishery Management Councils, scientific community, fishing industry participants, educational institutions, and the states. The resulting regional cooperative research, monitoring programs, ecosystem studies, and law enforcement initiatives have proved successful, and further cooperation will continue to increase efficiency, transparency, and, ultimately, the success of jointly managed fisheries. It is our hope that the Magnuson-Stevens Act Reauthorization will provide additional opportunities to build upon successful partnerships in the interjurisdictional management of Atlantic coast species.

Data Collection

Ensuring collection and access to comprehensive fisheries data is a top concern of the Commission as the Committee reauthorizes the Magnuson-Stevens Act. Data provide the foundation for marine fisheries management, and the Commission supports a myriad of fishery-dependent and independent surveys to support our 25 FMPs. Fisheries management decisions are only as good as the data supporting them, and the ultimate success of FMPs in terms of sustainable management and stakeholder confidence lies in the accuracy, reliability, and timeliness of the data we use to inform our stock assessments and decision making.

Fisheries data collection is often resource intensive. In an era of constrained budgets, the Commission strives to ensure each dollar is used wisely and goes as far as it can to supply accurate fisheries data. The Commission hopes the next reauthorization of the Magnuson-Stevens Act will ensure sufficient resources for fisheries

surveys and data collection programs. FMPs based on insufficient data are likely to result in more conservative management measures to address uncertainty in landings and population estimates. The result is lower than optimal catch quotas and erosion of public confidence in fishery management decisions. Given that Atlantic coastal fishery resources generate billions of dollars of economic activity and hundreds of thousands of jobs, it is essential that we continue to invest in the collection and management of high quality and timely data.

The Commission's Science Program coordinates the two primary Atlantic coast fishery-independent data collection programs—the South Atlantic component of the Southeast Area Monitoring and Assessment Program (SEAMAP) and the Northeast Area Monitoring and Assessment Program (NEAMAP), as well as species-specific surveys for northern shrimp, horseshoe crab, red drum, and American lobster. The Commission and its member states also participate in three fishery-dependent data collection programs: the Atlantic Coastal Cooperative Statistics Program (ACCSP), NOAA Fisheries Commercial Fisheries Statistics, and the Marine Recreational Information Program (MRIP). A detailed summary of the data collection programs the Commission participates in is attached.

It is important to reiterate that good data supports sound science and informed decisions. We will never fully understand every detail of the complex marine environment; however, we can improve our understanding to ensure the responsible stewardship of the shared Atlantic coast fisheries resources.

Thank you, Mr. Chairman and all the members of your Committee for your continued support and leadership in fisheries management, and for this opportunity to comment on fisheries management issues.

CC:

Jay Rockefeller, Chair, Senate Commerce, Science, and Transportation Committee
Committee

John Thune, Ranking Member, Senate Commerce, Science, and Transportation
Committee

PREPARED STATEMENT OF MATTHEW MCKENZIE, UNIVERSITY OF CONNECTICUT
HISTORY DEPARTMENT

Mr. Chairman, Mr. Ranking Member, Senator Blumenthal, members of the Subcommittee:

Thank you for the opportunity to address issues pertaining to the reauthorization of the Magnuson-Steven Fisheries Conservation Act. As an Associate Professor of environmental history at the University of Connecticut, a lifelong resident of coastal New England, and as the Connecticut Obligatory Member to the New England Fisheries Management Council, I see a reauthorized Magnuson Act potentially offering important tools to solve my region's endemic failure to manage the region's groundfish species. While my comments emerge from my work and experience as a researcher, resident, and resource manager, these positions are mine alone and do not necessarily reflect those of the University of Connecticut nor the New England Fisheries Management Council.

The only true and sustainable source of a nation's wealth is its sustainably managed natural resources. Magnuson has done much to provide that foundation in other regions. Unlike Alaska and the Pacific Northwest, however, where Magnuson has led to the successful management of the Nation's marine fisheries resources, its legacy in New England stands less clear. There have been successes, to be sure. The New England scallop industry, most prominently, turned around from facing ruin twenty-five years ago. Under Magnuson, scallopers engaged the management process to ensure the industry's long-term sustainability over short-term gains. Through the active and constructive engagement with the Magnuson process, the New England scallop fleet consistently ranks as one of the Nation's top fisheries.

Other fisheries have also used the processes provided for in Magnuson to end overfishing and restore other fish stocks. Atlantic herring, monkfish, and Arcadian Redfish, as examples, while still facing particular challenges, present further instances of New England's successes. In addition, Magnuson provides the New England recreational fishing interests a continued and active engagement in the process, one which promises great ecological and economic benefit as that sector's influence grows in the future.

Despite these successes, however, New England's commercial groundfish fishery has fared poorly under Magnuson. In fact, since Magnuson's passage, the New Englander groundfish fleet has done a better job of undermining one of the Nation's

most important strategic protein reserves than our Cold War rivals did before 1976. And, after a forty years of sustained of scientific research, governmental financial support, and focused regulatory attention, stocks of those species most associated with New England's oft-invoked fishing tradition—cod, Gulf of Maine haddock, and yellowtail flounder, among others—have continued to plummet to historic lows. As a New Englander and a student of its history, I find the irony of this situation both shocking and humiliating.

As those resources continue to decline, I believe that this depleted state of the region's key fish stocks will exacerbate the effects of the climate changes we currently see. The human consequences are even more ominous. As stocks decline, the competitive market for fish—the economic climate that we as a nation believe to be the best for citizens, business owners, and entrepreneurs alike—will likely devolve into a business environment marked by fear, defensiveness, and predatory competition. Such a climate makes it difficult for fishermen to think in more than just the short term—a problem that bodes ill for any meaningful sustainable management regime. Such a climate also stifles the innovation, creativity, and adaptability that, while less celebrated than its “fishing tradition,” has marked New England fishing since its inception.

I see many of the troubles facing New England groundfish stocks easing should a reauthorized Magnuson Act address the following four points. While I doubt these will solve all of New England's problems, I believe these will help. As we learned with the crisis in the striped bass fishery, restoring a fish stock requires actions across a wide spectrum. I feel these points begin to address the most important problems we currently face.

1. A nationally mandated adoption of ecosystem based fisheries management regimes that include more effective habitat protection measures and a more comprehensive understanding of the ecosystem role of forage species. Such a management regime must be developed and implemented at a national level with input from regional science centers, academic researchers, and industry partners. Furthermore, it is essential that all information utilized in such a process be made—in its raw form—transparent and readily accessible for unfettered public review. As the National Research Council¹ has stated, such transparency represents an essential element in determining information's scientific merit.
2. Related to the first: Maximum Sustainable Yield (MSY) theory, as the foundation for national fisheries policy, must be critically and carefully reconsidered by a blue-ribbon committee of scientists best suited to review and perhaps replace MSY theory with another management precept better suited to current fisheries conditions. As Carmel Finley has recently argued,² MSY theory never enjoyed a majority of scientific support in the U.S. before 1976. More importantly, Sidney Holt—who, along with Ray Breverton developed the concept of MSY in the mid-1950s at Lowestoft, England—has openly critiqued how MSY theory has been implemented around the globe, and questioned its continued utility in managing overfished stocks, such ours in New England.³
3. Magnuson reauthorization must clarify Congress' intentions as to when the Act's mandates for stock rebuilding must take precedent over industry practicability concerns. In my view, the council process, and perhaps the courts too, have tended to put practicability and conservation on an equal footing even as the preamble to the 2007 reauthorized Act clearly states Congress' desire to rebuild overfished stocks. Providing clear guidance as to when rebuilding must be accomplished regardless of its inconvenience to industry will ensure, in New England at least, a more effective management regime. That said, it is also essential that timelines for rebuilding overfished stocks must be based on ecosystem-based scientific understandings, and not on political compromise. If we find instances when industry must take a secondary role to recovery, it is only rational that the duration of such a situation be based on the best scientific information available.

¹National Research Council of the National Academies, *Improving the Use of the “Best Scientific Information Available” Standard in Fisheries Management* (Washington, DC: The National Academies Press, 2004).

²Carmel Finley, *All the Fish in the Sea: Maximum Sustainable Yield and the Failure of Fisheries Management* (Chicago: University of Chicago Press, 2011).

³Sidney Holt, “The Some Good and Mostly Bad about Maximum Sustainable Yield as a Management Target,” presented at the International Council for the Exploration of the Seas Annual Science Conference, Bergen, Norway, 17–21 September, 2012.

4. Council members need to be more extensively trained in the ecological, operational, economic, scientific, legal, and regulatory contexts within which fishing exists. Most importantly, however, council members must also be trained in, and councils as a whole must be held accountable to, the ethical mandates that accompany the power they wield in the public's name. Using council membership to advance the particular interests of one group or another—be they NGO's or industry associations—defies the oath councilors take. The history of New England's groundfish fishery since the passage of the Magnuson Act in 1976 offers a sad testimony as to how competing short-term self-interests in the council have left the long-term interest of the public sadly ignored.

Thank you for the opportunity to provide some input into the issues which Magnuson reauthorization could address.

Respectfully Submitted,

MATTHEW MCKENZIE,
Assistant Professor,
 University of Connecticut History Department,
American Studies Coordinator,
 Avery Point Campus.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARK BEGICH TO
 JOHN K. BULLARD

Follow up on Touchstone Report on New England Fishery Management

Question 1. NOAA completed an independent assessment and review of New England Fishery management, conducted by Touchstone Consulting Group, "A Review of the New England Fishery Management Process". The report primarily drew from stakeholder input and examined the effectiveness of the New England Fishery Management Council, the Northeast Fishery Science Center, and the Northeast Regional Management Office. The recommendations made by the report include the need to simplify, streamline, and eliminate many redundant management practices that are seen by stakeholders as cumbersome and capricious, and the formulation of a strategic vision and a balance between conservation and service to the industry. In addition, the report noted the need for improved quality and timeliness of data. Following the release of the report, NOAA announced that it would adopt a series of immediate actions and near-term plans to incorporate the report's recommendations.

As I requested at the hearing, please provide the Committee with the implementation status of the Touchstone report's various recommended improvements for the New England Fishery Management Process.

Answer. NOAA has made significant progress addressing the issues identified by the independent assessment and review of the fishery management process in New England. The Report identified several priority areas in need of improvement: improving our data management systems; collaborating more effectively with our partners on science, cooperative research, and reviews of our science programs; exploring new approaches to communicating with fishermen about regulatory actions and the science behind those actions; and identifying ways for the New England Fishery Management Council (Council), the Northeast Regional Office (Region) and the Northeast Fisheries Science Center (Center) to work together effectively to make these improvements.

Recommendations made in the report were broken down into four broad categories: (1) simplify governance; (2) simplify communications; (3) improve science collaboration; and (4) maximize collaboration. NOAA has developed an action plan in response to the recommendations:

- (1) *Simplify Governance.* The report states that the fishery management process can be difficult and that in some cases regulations have become overly complicated and redundant. To address these concerns, we developed memorandums of understanding between NOAA and both the New England (memorandum is nearly finalized) and Mid-Atlantic (final) Fishery Management Councils. These memorandums of understanding will strengthen collaboration between NOAA and the Councils, simplify the governance structure and process, and highlight additional opportunities for public input. We also convened a team of Council, Region, and Center staff to develop and implement best practices and recommendations for improving the efficiency, collaboration, and effectiveness of the fishery management process.

Regional data management systems were also cited as being redundant and in need of better integration between the Region and Center. To address this

concern, a working group of Center and Region staff performed an intensive review and analysis of data gathered from the fisheries and how those data are managed and delivered. The group, charged with addressing current concerns as well as with developing a long-term vision for the future, has identified near-term improvements to the existing data collections and management systems and longer-term activity that will recommend a redesign of these systems. NOAA has also developed a standardized peer-review process to evaluate each aspect of its science programs that is currently focused on the collection, management, and quality of data used for stock assessments.

We have made advances in how we collect much of our data. One key improvement will be to move from paper to electronic reporting of individual fishing trips. We expect to be able to accept electronic vessel trip reports in a majority of fisheries by the end of the year. Further, we have improved the collection, processing, and availability of the data collected by our fishery observers and for delivering biological data collected from scientific surveys by the implementation of a web-based data entry system. Use of barcoding to tag samples has saved time and reduced error rates at every step from collection through auditing and data delivery.

- (2) *Simplify Communications.* NOAA has made improving our communications and relations with industry a priority. We are committed to continuing the effort and are actively seeking ways to develop a more consistent and focused message. We have taken several measures including the formation of a Communications Team and updating our communications plan that supports all Regional Office program staff that work with industry and the public, and that promotes outreach collaboration between the Regional Office, Center, Council, and the Office of Law Enforcement. We have also made the information distributed to fishermen more streamlined and accessible, and are using clear, more concise language in our communication materials.
- (3) *Improve Science Collaboration.* This category covers topics as wide as cooperative research, stock assessments, social sciences and economics. In response to this challenge, NOAA has worked with our stakeholders to ensure that our Cooperative Research Program is responsive to industry, management, and scientific priorities. Ten public meetings were held to review progress and the focus of the program. This resulted in putting more emphasis on projects to reduce the scientific uncertainty in analyses important to setting annual catch limits, and to characterize bycatch and discards. To address the communication and transparency concerns raised in the report, the program website was redesigned, making more information available and easily accessible.

To improve the stock assessments, an Assessment Oversight Panel (Panel) was established and includes the chairs of the Councils' Scientific and Statistical Committees and a senior Center assessment scientist. The Panel meets annually to review assessment plans before work begins on new stock assessments. Stock assessments selected for completion through the Panel are now integrated, such that Scientific and Statistical Committee members responsible for the stock under review are part of the review panel. The New England Fishery Management Council's procedures have been revised so that its Scientific and Statistical Committee does not further peer review stock assessments—consistent with the Mid-Atlantic Council's procedures.

NOAA is ensuring that socioeconomic analyses are more visible and meaningful in the Northeast fisheries management process. Since 2011, we have developed social and economic surveys to gather information needed to improve analysis of how fishery regulations affect fishing businesses, communities, and local economies. We have developed fisheries performance measures to track the relationship between fisheries regulations and sustainable outcomes and are now publishing an annual report specifically focused on the performance of the New England groundfish fishery.

- (4) *Maximize Collaboration (Council Lead).* The Council has taken responsibility for findings in the report applicable to their process. Issues tackled by the Council include redesigning Council meetings to be a more open and collaborative process and creating a performance management system to track the progress of Council decisions and capture lessons learned.

Challenges in New England Fisheries Management

Question 2. New England's fisheries have faced more challenging management issues than other regions. For example, New England has eight stocks "subject to overfishing", and 13 categorized as "overfished," including a number of historically and commercially important species such as cod. By contrast, the mid-Atlantic has

none. What is the agency doing to address the historical overfishing of iconic groundfish, such as Atlantic cod, and the resulting hardship to New England fishermen?

Answer. After decades of intense fishing by both international and domestic fleets, many Northeast groundfish stocks reached record low levels in the early 1990s, particularly cod, haddock, and yellowtail flounder. Despite fishermen's adherence to annual catch limits in recent years, several key fish stocks in the Northeast are not rebuilding as expected. Slower growth rates, delayed maturation, lower average recruitment, and increased natural mortality impede recovery.

We believe that changing ocean conditions (*i.e.*, warmer water, changing prey species and abundance) in the Northwest Atlantic may be a contributing factor. Last year (2012) was the warmest year on record in the Gulf of Maine, Georges Bank, and Southern New England, and a changing climate and ecosystem are affecting fish stocks. This is an active area of research and NOAA requested an additional \$10 million to support research on the impacts of climate on fish stocks, with a focus on the Northeast groundfish region in the FY 2014 President's Budget request. Additionally, in the fall of 2013, NOAA is conducting a climate vulnerability assessment for all managed fishery species in the Northeast region.

For the 2013 fishing year that started May 1, NOAA implemented catch limits for some stocks that are substantial reductions from 2012. For example, fishing year 2013 catch limits for Gulf of Maine and Georges Bank cod are 77 percent and 61 percent lower than the fishing year 2012 catch limits, respectively. It is worth noting that although the situation is worse concerning cod and yellowtail flounder, other New England groundfish stocks such as Georges Bank haddock, Pollock, and redfish are not currently overfished or subject to overfishing.

NOAA has taken several steps in 2013 to mitigate the economic impacts of the low catch limits for some stocks:

- NOAA has worked with the New England Fishery Management Council to off-set expected losses by providing greater access to other healthy fish stocks, such as redfish, winter flounder, spiny dogfish, and white hake.
- NOAA is allowing fishermen to continue to carryover, with no pound for pound payback, up to 10 percent of their 2012 uncaught quota into the 2013 fishing year for all stocks except Gulf of Maine cod, for which, to prevent overfishing, the carryover is 1.85 percent.
- NOAA eliminated the dockside monitoring program.
- In addition, we are currently paying for at-sea monitoring costs for the remainder of fishing year 2013—costs that were scheduled to be transferred in part to industry this year. We are exploring options for establishing a cost-sharing arrangement with the fishing industry to potentially help off-set the costs of at-sea monitoring in the future, subject to future appropriations.

NOAA is working with industry and other agencies to generate an initiative to support fishermen during these difficult times. These ideas are outlined in a 'living document' entitled *Fishing Through Tough Times: A Working Document on Resources to Support the Northeast Groundfish Industry*. The draft initiative includes measures such as identifying Federal loan programs that can help fishermen and improve marketing to increase prices paid to fishermen. Several meetings have been held with stakeholders in the region to identify and pursue such options. A number of meetings have also been held with Congressional members from New England to ensure that the plan helps to address concerns they are hearing from their constituents.

From these initial meetings, a Northeast Groundfish Economic Coordinating Committee has been established that includes members from NOAA, other Federal agencies, state and local government, and the fishing industry. The purpose of this Coordinating Committee is to keep the ideas in the resource document moving forward, and to foster a coordinated approach for this important issue. We are also working closely with the Groundfish Task Force established by Governor Deval Patrick, and have nearly weekly calls with representatives from the Commonwealth of Massachusetts to discuss our respective efforts to help the fishing industry.

NOAA is sponsoring a presentation and webinar on December 2 by the U.S. Small Business Administration and the U.S. Department of Agriculture on their programs that can provide support to the fishing industry during these challenging times. Commercial fishing is considered a type of harvesting so is suitable for these forms of assistance, and the fishermen, dealers, and others in the industry can find out whether they are eligible for the various kinds of assistance offered by these agencies, and if so, how to apply.

Question 3. Do you think the emergency we face in the New England groundfish fishery results from strict timetables in the MSA or the biological situation in the water?

Answer. The groundfish fishery in New England is made up of 20 managed stocks, and the biological characteristics of those stocks vary considerably. While some of the stocks are in good condition and have responded well to management, such as Georges Bank haddock, pollock, and Acadian redfish; others, such as the cod stocks and Georges Bank yellowtail flounder, have not. Because of the different stock conditions and life histories of the overfished stocks, some had rebuilding periods of 10 years or less, while others had longer rebuilding periods. But, in spite of best efforts to set appropriate and scientifically based annual catch limits and other measures to rebuild these stocks, regardless of the length of their rebuilding periods, some have not responded as expected. This has necessitated repeated and sometimes large cuts to the catch limits to try to get the stocks back on their rebuilding timelines. It does appear that environmental factors are hampering the rebuilding efforts, as evidenced by many years of poor reproduction, survival, and growth in some stocks. The overall difficult conditions in this fishery are likely the result of factors other than MSA timetables that we are still trying to understand.

Question 4. What steps are needed to ensure we don't end up with a fishery collapse similar to the one that occurred in Newfoundland, Canada, in the 1990s?

Answer. The Magnuson-Stevens Act provides the tools and processes necessary to manage the groundfish fishery, consistent with the stock assessment advice, such that fishery collapses can be avoided. The New England Fishery Management Council and NOAA have been using those tools to rebuild stocks and to keep overfishing from occurring. However, while many stocks in New England and elsewhere in the country have responded as expected to this type of management and have rebuilt, a few, such as several of the New England groundfish stocks, have not. There is growing concern that there may be environmental changes occurring, such as warming waters and possible changes in distribution of prey that we do not yet fully understand, and that may be thwarting our management efforts. The best managers can do is use the available tools, based on the best scientific information, to control fishing mortality until conditions are right to produce better reproduction, survival, and growth of the stocks. Without improvements in those factors, managers cannot guarantee successful outcomes over the long term.

Question 5. New England has been plagued with stock management issues more so than other regions, including the nearby mid-Atlantic. Why has New England had so many problems? Do you believe that it's primarily a management or a biological issue?

Answer. We believe that rebuilding Northeast multispecies (groundfish) stocks is more challenging than managing most stocks due to both biological reasons and past management choices.

Most of the fisheries in both the Mid-Atlantic and New England are healthy, productive, and have responded well to management under the Magnuson-Stevens Act. In New England, the scallop fishery is the most valuable fishery in the Nation, and others such as monkfish, skates, red crab, and herring are in good shape. It is really only the groundfish fishery that continues to have some serious issues, despite all efforts to rebuild these stocks. That fishery has 20 managed stocks, some of which are in good condition that can support substantial fishing effort. However, there are several, such as cod, yellowtail flounder, and Gulf of Maine haddock, that are at low levels causing considerable concern. The reasons for the sharp declines in these stocks are not completely understood, but they constrain the fishery as a whole, because the quotas for these stocks are necessarily low based on their current low abundance. The complexity of this fishery in terms of the fish stocks, and its diversity in terms of gear types, vessel sizes, historical participation and other factors, has made this a very challenging fishery to manage for a long time. No fishery in the Mid-Atlantic, and few elsewhere in the country, is as complex as the New England groundfish fishery.

The second key difference involves the fishery management measures that have been used to control fishery removals. For New England stocks, past fisheries management relied largely on indirect management measures including effort control to achieve target Total Allowable Catches. As a result, these target TACs were frequently exceeded resulting in overfishing and declining stock conditions. For Mid-Atlantic stocks, fisheries management established quotas much earlier than in New England. As a result, overfishing was eliminated earlier and stocks were rebuilt more rapidly.

Impacts of 2006 Magnuson-Stevens Act Amendments

Question 6. The 2006 reauthorization of MSA added significant provisions that were groundbreaking in several respects. Congress amended the Act to require for the first time the use of annual catch limits and accountability measures to end overfishing, provided for innovative new fishery management systems, mandated the creation of a national saltwater angler registry for the purpose of quantifying, for the first time, nationwide recreational fishing effort, and called for ecosystem-based management and increased international cooperation on fisheries management issues.

What role have the 2006 amendments to the Magnuson-Stevens Act, specifically changes to require the fishery management councils to follow the advice of scientists and to establish accountability measures when setting annual catch limits, played in helping end overfishing, rebuilding depleted fish populations, and moving America's fisheries on a path toward sustainability?

Answer. The Magnuson-Stevens Act ensures that fishery managers use the best scientific information available to prevent overfishing, actively rebuild depleted stocks, and minimize bycatch and impacts to habitat. This dynamic, highly participatory, and science-based management process, based on 10 National Standards of sustainability, has helped the United States become a global leader in sustainable fisheries and seafood. The last reauthorization of the Magnuson-Stevens Act included provisions to establish annual catch limits and accountability measures, and promote the use of science in setting those limits. While we recognize that implementing annual catch limits has not been without cost and challenge, they have been effective at ending and preventing overfishing.

- By 2012, all Federal fisheries for which annual catch limits were required were operating under annual catch limits. As of June 30, 2013, assessments demonstrated that overfishing ended for 58 percent of the domestic stocks that were subject to overfishing as of March 31, 2007, when the requirement to implement annual catch limits was added to the Magnuson-Stevens Act.
- Each year, we prepare a report to Congress on the Status of U.S. Fisheries. In our 2012 report, we determined that 10 stocks were no longer subject to overfishing, four stocks were no longer overfished, and six stocks managed under rebuilding plans were rebuilt to their target levels. Since release of the Report to Congress, one additional stock was determined to be no longer subject to overfishing and one additional stock has rebuilt, bringing the total number of rebuilt stocks to 33 since 2000.

As additional stock assessments are completed, we expect the number of stocks on the overfishing list—now at an all-time low—to decrease further as a result of management under annual catch limits.

Question 7. What benefits have New England and Mid-Atlantic fishermen and their communities enjoyed from ending overfishing and rebuilding fishery stocks?

Answer. Summer flounder and scallops are two cases in the Northeast in which rebuilding efforts were successful. The simplest way to provide an indication of benefits to New England and Mid-Atlantic fishermen of the increase in these stocks is through a comparison of current ex-vessel revenues to revenues before rebuilding took place. For example, in 1998 before rebuilding sea scallop ex-vessel revenue was valued at only just over \$75 million (\$121 million in inflation-adjusted 2011 dollars). In comparison, in 2011 dockside landings of Atlantic sea scallops were \$581 million, and due to scallops, New Bedford, MA was the most lucrative fishing port in the Nation.

Similarly, summer flounder ex-vessel revenues were \$16 million in 1997 and \$31.7 million in 2011 after the rebuilding program. Summer flounder is also one of the most sought after species by recreational fishermen. In 2006, anglers spent an estimated \$234.1 million fishing for summer flounder along the Atlantic coast. Many of these anglers would switch to alternative species if summer flounder encounter rates declined, but supporting businesses would be impacted if anglers reduced their effort in response to the declines.

Beyond the gross revenues, other indicators of the financial and social benefits of rebuilding of these species are not immediately available. However, the amount of revenue involved makes it easy to imagine the broader direct and indirect economic impact of these two species in terms of jobs, value-added revenue from wholesalers, processors, retailers, and others. If overfishing had not been controlled, most of this revenue would likely have been lost. Furthermore, if summer flounder and scallops were allowed to decline, losses may have been further compounded by increased overfishing in other fisheries resulting from the shift of summer flounder and scallop fishermen into other fisheries.

Although these are two stories of successful rebuilding plans, it is important to point out that rebuilding is a complex process and results may not be known for several years.

Question 8. How can we better support fishermen struggling to make ends meet as depleted stocks rebuild?

Answer. NOAA is working with industry and other agencies to generate an initiative to support fishermen and help the industry maintain its viability through these challenging times. These ideas are outlined in a 'living document' titled *Fishing Through Tough Times: A Working Document on Resources to Support the Northeast Groundfish Industry*,¹ and includes an array of information and ideas. In particular, the document (1) makes fishermen and support businesses aware of the various forms of assistance available to them, (2) identifies the key agencies and entities that can provide that support, (3) facilitates interaction with our partners to address current and emerging issues, and (4) enables agencies to recognize and undertake the actions that fall within their purview. Currently, there are thirty items that suggest both regulatory and financial forms of assistance.

A Northeast Groundfish Economic Coordinating Committee has been established. The Coordinating Committee, which I chair, is composed of the lead contacts for each of the actions outlined in this evolving resource document, and the purpose is to keep the ideas in the resource document moving forward, and to foster a coordinated approach for this important issue.

We are also working closely with the Groundfish Task Force established by the Governor of Massachusetts, and have nearly weekly calls with representatives from the Commonwealth to discuss our respective efforts to help the fishing industry.

NOAA is sponsoring a presentation and webinar on December 2 by the U.S. Small Business Administration and the U.S. Department of Agriculture on their programs that can provide support to the fishing industry during these challenging times. Commercial fishing is considered a type of harvesting so is suitable for these forms of assistance, and the fishermen, dealers, and others in the industry can find out whether they are eligible for the various kinds of assistance offered by these agencies, and if so, how to apply.

Cooperative Management

Question 9. Section 318 of the Magnuson-Stevens Act requires the Secretary of Commerce to establish a cooperative research and management program to support the conservation and management objectives of the Act; however, cooperative management strategies have yet to be extensively incorporated into Federal fisheries management.

MSA authorizes the use of cooperative management strategies in Federal fisheries management. Do you see a benefit to cooperative management strategies?

Answer. Yes, cooperative research and management are very important. The Magnuson-Stevens Act's fishery management council processes are by nature cooperative. Regarding research, NOAA has established a cooperative research program that has effectively engaged and benefited from collaborations with a broad range of external stakeholders including: State and Tribal managers and scientists (including interstate fishery commissions); fishing industry participants (including commercial and recreational fishermen); and educational institutions.

Program results include: increased quantity and quality of data; inclusion of stakeholders' knowledge in science and management; improved relevance of research to fisheries management; and reduced costs of science. Additionally, this program has promoted and continues to promote a shared understanding of science and support for management decisions by stakeholders and improved relationships with constituents.

The NOAA Cooperative Research program is a critical component of our approach to management and has resulted in significant improvements in our scientific understanding of our fisheries and fish stocks. This program provides a means for commercial and recreational fishermen to become involved in the collection of fundamental fisheries information to support the development and evaluation of management options.

FY 2013 highlights across the country of the agency's cooperative research program include:

Northeast Fisheries Science Center's Spiny Dogfish Tagging Study: This is a cooperative initiative to tag spiny dogfish (*Squalus acanthias*) in the Gulf of Maine, Southern New England, and Georges Bank. The aim of this project is to answer long-standing questions about stock structure, movement patterns,

¹<http://nero.noaa.gov/fish/resources/index.html>

and life history of the species in order to update and improve dogfish stock assessments.

Southeast Fisheries Science Center's Pilot Study on the Use of a Video Electronic Monitoring System and Archival Satellite Pop-off Tags to Estimate Endangered Species Act-Listed Smalltooth Sawfish Bycatch Mortality in Shrimp Trawl Fisheries in the Gulf of Mexico: The results of this cooperative study will provide information on the applicability of monitoring the take of large marine animals in shrimp trawls. While objectives in this study are specific to sawfish due to the need to further evaluate their effect on their population recovery, bycatch of dolphin, sturgeon, sharks, and sea turtles have been reported in shrimp trawls. Therefore, the results could be used to evaluate the potential to monitor bycatch of these large marine animals in other trawl fisheries across the Nation.

Northwest Fisheries Science Center's Southern California Hook and Line Survey: This collaborative effort with the sport fishing industry allows NOAA to monitor untrawlable habitats of many structure-associated species that are commercially and recreationally important and in some cases are designated as overfished. The resulting data is essential for the assessment of several key shelf rockfish species.

Southwest Fisheries Science Center's Southern California Nursery Area Longline Survey for Pre-recruit Common Thresher Sharks: This cooperative survey in the Southern California Bight is focused on defining the core nursery areas of young-of-the-year common thresher shark pups and obtaining a fishery-independent estimate of recruitment. The resulting data have already been used to demonstrate increasing trends in abundance of threshers in California waters.

Alaska Fisheries Science Center's Fishing Technology and Conservation Engineering to Reduce Bycatch Studies: This is a cooperative effort with Alaska fishing groups to improve fishing gear and methods to achieve bycatch reduction, measure mortalities from all kinds of bycatch and address the effects of fishing gear on seafloor habitats. This effort combines its scientific techniques and direct observation tools with the gear and fishing expertise of industry partners to design and test solutions to these issues.

Pacific Islands Fisheries Science Center's Pilot Survey for Bottomfish in the Waters Around Oahu, Maui, Hawaii, and Guam: The goal of this pilot survey is to assess spatial connectivity of local bottomfish populations and provide crucial population level abundance indices for bottomfish. The resulting data will support improved bottomfish stock assessments.

In sum, NOAA's cooperative research programs provide valuable data and products used to support Federal and State fishery management programs involving a broad spectrum of stakeholders.

NOAA also supports the Bycatch Reduction Engineering Program, which provides an external grant program to develop technological solutions and investigate changes in fishing practices to minimize bycatch of fish and protected species (including marine mammals, seabirds, and sea turtles), and for those animals that are caught as bycatch, to minimize injury and mortality. In September 2013, NOAA awarded 16 grants totaling nearly \$2.4 million under its Bycatch Reduction Engineering Program.

Question 10. Why hasn't the agency embraced these approaches extensively? What do you see as the barriers?

Answer. The Magnuson-Stevens Act is specifically designed to develop cooperative solutions to our fishery management challenges. The primary designers of fishery management actions are fishery constituents, who work through the highly public and participatory regional fishery management council process to design management that both meets the standards of the Act, as well as the unique regional needs of the fishing industry and fishing communities. Voting Council members are comprised of fishermen, academics, and other interested citizens, state representatives, and the NOAA Regional Administrator, to develop management approaches to achieve the goals set forth in the Magnuson-Stevens Act. Taken together, the U.S. approach to fishery management and specific cooperative management programs result in a robust and cooperative process that has improved the sustainability of the Nation's fishery resources.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. RICHARD BLUMENTHAL TO
JOHN K. BULLARD

Aquaculture and Essential Fish Habitat

Question 1. One of the issues that I hear about from shellfish farmers in Connecticut is that certain environmental regulations can pose challenges for shellfish permitting, which is a big industry in my state. For instance, eelgrass is protected as “essential fish habitat” under the Magnuson-Stevens Act. Yet, I hear from scientists that shellfish aquaculture provides many of the same ecosystem benefits that eelgrass provides including improvements in habitat and water quality. Should we move away from a policy that mandates “no net loss of eelgrass”—to one that says “no net loss of ecosystem function”?

Answer. NOAA does not have a formal “no net loss of eelgrass” policy; however, the value of eelgrass and its susceptibility to degradation make it a priority for habitat protection through NOAA’s multiple consultation mandates. NOAA recognizes the valuable role of the shellfish aquaculture industry to provide sustainable seafood and ecosystem services, restore habitats, and create jobs in coastal communities nationally, including those in New England. As described in our 2011 Aquaculture Policy, NOAA supports a regulatory approach that provides opportunity for the aquaculture industry as well as protects high priority habitats that are essential to fisheries. In 2011, we launched the National Shellfish Initiative specifically to increase populations of shellfish in our Nation’s coastal waters through both commercial production and conservation activities.

Eelgrass is important habitat for many NOAA trust resource species. Pursuant to the Magnuson-Stevens Act, eelgrass has been identified as “essential fish habitat” along much of the Atlantic coast due to its importance in the productivity of fisheries such as summer flounder, cod, and winter flounder. Other non-Magnuson-Stevens Act species such as bay scallops also depend on eelgrass, which provides food and shelter as individuals grow to maturity. In much of its Atlantic and Pacific range, eelgrass has been designated as a Habitat Area of Particular Concern (a special subset of Essential Fish Habitat) by the regional fishery management council. For example, the Mid-Atlantic Fishery Management Council designated eelgrass as Essential Fish Habitat and a Habitat Area of Particular Concern due to its importance for survival of various life stages of summer flounder throughout its range. In addition to the importance of eelgrass for fish production, it is also a valuable component of the marine ecosystem contributing to the greater diversity of bottom dwelling animals. Eelgrass also improves water quality by trapping suspended sediments and absorbing nutrients. It helps to stabilize bottom sediments and has been shown to protect coastal properties from storm damage by absorbing waves and reducing erosion.

Other agencies recognized eelgrass values under their mandates. For example, the U.S. Army Corps of Engineers (Corps) and the Environmental Protection Agency (EPA) have designated eelgrass as a “special aquatic site” pursuant to Section 404 of the Clean Water Act. Currently, the New England District of the Corps and the State of Connecticut implement a general permit for the installation and operation of aquaculture facilities. One permit condition is that gear may not be located over or within submerged aquatic vegetation such as eelgrass. This restriction reflects the critical role eelgrass plays within the marine ecosystem. Despite the restriction in eelgrass habitat, and largely because eelgrass is not found in most coastal waters in Connecticut and other states, it is important to note that permits such as the one for Connecticut have helped to nurture shellfish aquaculture for many years.

NOAA recognizes that habitat protections for eelgrass and other special habitats can pose challenges to shellfish aquaculture permitting in discrete areas, and is willing to work with industry, environmental, state, and Federal partners to examine the issue. Eelgrass and shellfish are valued components of distressed marine ecosystems. NOAA’s laboratory in Milford, Connecticut conducts research demonstrating the ecosystem services of shellfish aquaculture, including nutrient extraction from coastal waters and nursery habitat for commercial and recreational species. Research in the Chesapeake Bay and elsewhere has revealed a co-dependence between eelgrass and filter-feeding shellfish, especially oysters. For example, both wild and cultured oysters filter water allowing light to penetrate to sediments where eelgrass grows. Eelgrass, in turn, stabilizes sediments, lessening the chance that shellfish will be buried from tidal and storm erosion. This indicates that strategic placement of shellfish aquaculture near sites where eelgrass grows can help maintain eelgrass, rather than leading to net losses.

While habitat provided by wild and cultured shellfish is valuable, it differs from the ecosystem functions provided by eelgrass. Since NOAA’s mandates require that it conserve aquatic vegetation and shellfish and foster sustainable aquaculture,

NOAA will work with its partners to seek ways to fully consider the ecosystem services of shellfish aquaculture in the permitting process.

Question 2. Is there a way for us to preserve biodiversity and ecosystem services while creating new jobs and providing sustainable seafood as well?

Answer. Providing sustainable seafood and creating jobs is important. In addition to striving to bring the Nation's wild fish stocks back to healthy and sustainable levels, NOAA invests in initiatives that support aquaculture as an important component of how the agency can reach this goal. There is a perception among some stakeholders of intrinsic conflict in balancing the goals of preserving biodiversity and ecosystem services and creating new jobs and providing domestic safe sustainable seafood for the Nation. However, case studies from the United States and around the world demonstrate that seafood can be caught and cultured sustainably. NOAA believes that increasing and diversifying our domestic seafood supply through expansion of sustainable marine aquaculture can be accomplished through careful regulation informed by sound science, and technology development and transfer to U.S. seafood growers.

In 2011, NOAA and the Department of Commerce issued new aquaculture policies that support both jobs and the environment. Shellfish culture will constitute a large part of meeting the goals and objectives of these policies. With the release of the 2011 policies, NOAA announced, and is now implementing, a National Shellfish Initiative to address a priority in our policy to increase the culture and enhancement of shellfish throughout the country. Successful aquaculture requires a healthy ecosystem and both provide direct and indirect economic benefits.

Using shellfish aquaculture as an example, markets for locally-produced seafood are growing nationwide, including demand for oysters, clams, mussels, and scallops in the populous northeast. Shellfish aquaculture infrastructure, whether simple bottom plantings or suspension or cage culture, provides habitat for invertebrate prey and young stages of fishes, thereby promoting biodiversity, while providing sustainable seafood and jobs for farmers, harvesters, and the marketing chain to seafood consumers. Diversification and growth in the shellfish aquaculture sector are being driven by market forces; domestic oyster culture is presently about a \$100 million per year industry nationwide and growing. Research at NOAA labs and partner institutions plays a critical role by informing management decisions to enable continued economic growth in a manner that is environmentally beneficial.

Ensuring Choke Stocks Do Not Limit Harvests of Healthy Fisheries

Question 3. Strict new rebuilding requirements, coupled with the annual catch limit mandate, create problems achieving sustainable yield for healthy stocks co-harvested in fisheries where some catch of rebuilding species is inevitable. In such instances, rebuilding stocks become "choke" species, preventing full harvest of healthy stocks and creating allocation battles. The problems Georges Bank yellowtail flounder are causing for New England haddock and scallop fisherman illustrate the situation. For instance, even though Georges Bank haddock is highly abundant, only a small fraction of its annual catch limit can be harvested. Likewise, yellowtail by-catch limits are driving scallop management decisions. Indeed, increasingly small yellowtail flounder allocations to the scallop fishery associated accountability measures risk closing the scallop fishery in highly productive areas on Georges Bank. Conservation is important to our fishing communities, but so is the need for abundant stocks to be harvested.

What steps are NOAA Fishery management councils taking to help ensure that fishermen have access to abundant resources, such as scallops and haddock?

Answer. NOAA has worked quickly with the Councils to increase catch limits when stock assessments have shown that a stock is in good condition and additional fishing opportunity is possible. For example, we worked with the New England Fishery Management Council to increase the catch limit for Gulf of Maine winter flounder when a new stock assessment was completed and showed that the stock was no longer subject to overfishing. We also moved quickly to increase quotas for redfish, white hake, and pollock, as new scientific advice became available.

We have also looked for flexibility to provide additional fishing opportunities to harvest healthy fish stocks. For example, we created new exempted fishery programs to enable greater harvests of spiny dogfish, skates, and redfish, and removed possession limits on monkfish for certain trips.

In the Northeast, in collaboration with the New England Fishery Management Council, we will continue to look for flexibility in Federal laws and ways to provide additional fishing opportunities to harvest healthy fish stocks. For example:

- We covered at-sea monitoring costs in 2013 for the groundfish fishery;

- We are exploring options to allow sectors access to portions of areas that were closed to address groundfish fishing mortality while maintaining closures in areas needed to protect habitat, vulnerable groundfish stocks, spawning stocks, and protected species;
- We are converting discards into landings that provide additional revenues for groundfish vessels;
- We eliminated the dockside monitoring program, and are considering reductions to minimum fish sizes and allowing landing of Southern New England/Mid-Atlantic winter flounder, which has been prohibited since 2010; and,
- The New England Council has reduced minimum fish sizes for many groundfish stocks, such as haddock, to reduce discards and allow more fish to be landed, and has provided special access programs for vessels using selective gear, so that the healthier stocks can be targeted with less catch of the less abundant stocks.
- We are continuing, with fishermen's help, to improve fisheries and marine ecosystem science and the way we communicate that science through cooperative research.

Question 4. What flexibility can be added to the Magnuson-Stevens Act to better balance conservation with access to abundant resources, such as scallops and haddock?

Answer. The Magnuson-Stevens Act currently requires the Councils to balance conservation with access to fishery resources, and provide tools to give Councils wide discretion to determine the best way to meet conservation goals while still providing fishing opportunities. The National Standard 1 guidelines address ending overfishing, including the requirements for annual catch limits and accountability measures, and stock rebuilding. We solicited public comment on ideas for revisions to the guidelines, and are continuing to analyze the issues raised by the Councils and the public. NOAA is exploring potential areas where guidelines may be able to provide more flexibility for the Councils and fishermen, while still meeting the requirements of the Magnuson-Stevens Act.

Fleet Overcapitalization

Question 5. We have been successfully reducing over-capacity issues in our fishing fleets for nearly two decades. Are we nearly where we need to be in terms of matching the fleet's capacity with sustainable harvest levels or are further cuts going to be required?

Answer. The number of federally permitted fishing vessels in the Northeast U.S. has fallen from a peak of almost 6,400 in 2005 to just over 5,000 in 2012. The median length and horsepower of permitted vessels has increased approximately 5 percent (for both length and horsepower) over that time period. NOAA had undertaken several studies to better understand the relationship between existing fishing capacity and fleet-optimal capacity. The results of these studies tend to indicate that over-capacity exists, but the degree of estimated over-capacity is affected to a large degree by the estimation method—several exist and there is no consensus as to the best measure. It is impossible to say to what degree existing fishing capacity is in line with potential long-term fishery yields.

The larger point is that fishing capacity is neither an advisable fishery management tool nor goal. Rather, it is best thought of as a result of a confluence of fishery management decisions and environmental/biological conditions. Capacity estimates may be used to assess how well—or poorly—fisherman are able to adjust their capital inputs in the face of ever-changing regulatory and environmental/biological conditions.

Fishery managers strive to reduce regulatory inefficiencies that prevent fisherman from “right-sizing” their businesses. In a fluid, dynamic fishery with sufficient flexibilities and, ideally, sufficient profit, fisherman will naturally adjust capacity to conditions.

Question 6. Are there other sectors where we could be putting displaced fishermen to work? When there was a net ban in Florida, training programs ushered in millions of dollars of new clam fishing production.

Answer. NOAA is supporting programs in two sectors that provide opportunities for displaced fishermen, either as a source of supplemental income or an alternative career path: aquaculture and shellfish restoration. In both of these sectors, fishermen are able to continue working on the water using the fishing vessels, skills, and much of the equipment they already possess. It is an attractive and viable option for many fishermen that also supports fishing communities and contributes to the preservation of working waterfronts.

Several programs have been implemented in the northeast to test retraining of fishermen to be sea farmers. These programs have had variable success, and are mainly dependent upon opportunities for prospective farmers to realize an immediate income. Among the successes are lobster fishermen who were among the first to invest in open ocean mussel farming in New England, dividing their time between fishing activities and tending and harvesting mussels from submerged longlines. Others have completed training through a NOAA-supported “cod academy” and are pursuing new careers as finfish farmers.

Aquaculture provides permanent long-term private industry jobs not dependent on government funding. Currently, aquaculture production is the third most valuable fisheries product landed in the Northeast region (from Virginia to Maine) only behind scallops and lobster. This economic engine is helping many rural communities maintain their working waterfront and the jobs associated with them. However, overall aquaculture production in the United States is very low relative to many other countries and to our potential production, and we import over 90 percent of our seafood, about half of which comes from aquaculture. There is significant room for expansion of sustainable aquaculture in the United States, which economic studies indicate could create tens of thousands of jobs. NOAA is working to increase the areas available to aquaculture by supporting efforts to streamline permitting in state waters and to develop projects and permitting systems in Federal waters. For example, in New England, we are working with local fishermen to permit a mussel farm in Federal waters.

Municipalities in New England that are historical fishing ports are actively developing waterfront infrastructure (*e.g.*, piers in Plymouth, MA) to attract shellfish aquaculturists as groundfish landings become less able to support local economies. Research quantifying the ecosystem interactions of expanded shellfish aquaculture in New England coastal ecosystems is needed to inform management decisions enabling expansion of this seafood sector in an environmentally responsible way. We are currently working with fishermen and academic partners to establish a small number of projects in New England to develop appropriate techniques, and to better understand potential environmental impacts.

A related sector is shellfish restoration. Shellfish farmers across the Nation (including New England) are often employed in shellfish restoration activities supported by Federal, State, local, and/or private funding. The goals of most restoration efforts are to increase biodiversity and ecosystem services. Additionally, habitat restoration jobs may also pay economic dividends twice over: first in creating immediate, local jobs; and then, through healthy habitats that support fisheries, tourism, and coastal resiliency for years to come. Several recent peer-reviewed studies² have confirmed NOAA’s own data that habitat restoration, including shellfish restoration, creates, on average, 17–33 jobs for every \$1 million investment—a strong rate of job creation. According to an Ecotrust study³ on the U.S. west coast, an average of \$0.80 of every \$1.00 spent on a restoration project stays in the county where the project is located, and \$0.90 stays in the state.

Question 7. Should we be retraining fishermen to grow mussels or seaweed? What can NOAA do to streamline permitting for mussel farms in Federal waters? We impact millions of dollars of mussels from Canada.

Answer. NOAA is exploring additional ways we can help those fishermen who want to learn how to grow mussels, seaweed, and other products in the marine environment. A major new initiative at NOAA’s Northeast Fisheries Science Center is actively addressing the potential for local mussel aquaculture. We are using new technologies to identify sites with high potential for mussel aquaculture production, as well as quantifying the ecosystem benefits of shellfish culture such as the amount of nitrogen or carbon that can be removed from coastal environments.

² Edwards PET, AE Sutton-Grier, and GE Coyle. 2013. Investing in nature: Restoring coastal habitat blue infrastructure and green job creation. *Marine Policy* 38: 65–71.

Heinz J, *et al.*, 2009. *How Infrastructure Investments Support the U.S. Economy: Employment, Productivity, and Growth*. Political Economy Research Institute Hibbard M and S Lurie. 2006. Some Community Socio-Economic Benefits of Watershed Councils: A Case Study From Oregon. *Journal of Environmental Planning and Management* 49: 891–908.

U.S. Department of the Interior Report. 2009. *Economic impact of the Department of Interior’s Programs and Activities*.

Nielsen-Pincus M and C Mosely. 2010. *Economic and Employment Impacts of Forest and Watershed Restoration in Oregon*.

University of Oregon, Ecosystem Workforce Program, Working Paper No. 24.

Nature Conservancy. *Benefits of Restoration for People and Nature*.

³In *Oregon’s Restoration Economy*. Available at: http://www.ecotrust.org/wwri/downloads/WWRI_OR_brochure.pdf

NOAA is using pilot projects to identify and resolve permitting issues with development of offshore mussel farming—for example, the coexistence of mussel farms and endangered marine mammals and turtles that are protected under U.S. laws. We are looking at how other countries (New Zealand, Canada, northern Europe) have been able to successfully expand mussel culture using methods that are protective of their large populations of whales and turtles. These mature and proven technologies can be used here to create jobs and to provide sustainable seafood to our Nation as well. Similar issues arise with respect to seaweed farming—as with mussel farming, we can look to the experience in countries with established industries for useful information about potential impacts and available technologies, methods and management approaches to address adverse impacts.

Finally, under directives in the President's National Ocean Policy Implementation Plan, we are working with our partners in other agencies to coordinate and improve the process for authorizing marine aquaculture operations under multiple statutes. A major contribution for NOAA is our understanding of how aquaculture interacts with the marine environment and how marine aquaculture operations can be designed, sited, and operated in a way that is compatible with our marine stewardship obligations.

Question 8. NOAA has determined that the Magnuson-Stevens Act gives it authority to regulate shellfish aquaculture activities in Federal waters. Are there any shellfish aquaculture experts or representatives on the Regional Councils? Should the Regional Fisheries Management Councils have any regulatory authority over shellfish aquaculture permitting?

Answer. NOAA's position is that the definition of "fishing" in the Magnuson-Stevens Act includes the harvesting of cultured fish and shellfish. So if a species is included in a fishery management plan, a grower must obtain an exempted fishing permit or other authorization from NOAA. Although this requirement does not apply to species not covered by a fishery management plan, we expect Fishery Management Councils in regions where interest in offshore aquaculture is expanding to consider developing aquaculture-specific fishery management plans in the future. The Gulf of Mexico Fishery Management Council took such an approach when it developed its aquaculture-specific fishery management plan. Although the Gulf aquaculture fishery management plan does not include any shellfish species, it nevertheless provides a good example of how a Council can take a regional approach to managing species that are likely to be considered for commercial aquaculture production in their region. NOAA is interested in working with Congress to explore alternative approaches that could provide the necessary regulatory clarity for aquaculture to develop in Federal waters.

The makeup of each fishery management council reflects the expertise and interests of the states in that region. So in regions where interest in offshore shellfish aquaculture is expanding, we expect to see a corresponding increase in the number of shellfish aquaculture experts nominated to serve on that region's fishery management council. Meanwhile, such experts may already serve on, and increasingly apply to fill future vacancies on, Council Advisory Panels and the Science and Statistical Committee and influence the future development of aquaculture fishery management plans.

While we have not specifically asked the governors to nominate shellfish aquaculture experts to serve on regional fishery management councils, it is likely that some members who represent commercial fishing, seafood businesses, academia, tribes, and state and Federal agencies do have relevant expertise in shellfish aquaculture.

Observer Data

Question 9. Information collected by fisheries observers represents an important source of data for fishery conservation and management. For instance, observer data is used in many fisheries to track a fishing fleet's level of by-catch against its overall by-catch limits. Certain fishermen, such as scallop industry participants, are required to pay for their own observers, and that can be very expensive. I understand it can take many months for NOAA Fisheries to be able to compile and analyze data obtained from observers so these data can be used to estimate by-catch levels. As a result, fishermen can end up "flying blind" during the fishing season in terms of knowing where their catches are in relation to by-catch limits. What more can NOAA Fisheries do to ensure observer information is accurate?

Answer. Observer data is critical to our scientific and management needs. NOAA has developed important processes and procedures, described in more detail below, to ensure observer information is accurate. Our thorough quality assurance/quality control process can take time and we are continuing to explore and invest in ways to increase the efficiency of our data collection efforts, such as through the use of

electronic reporting. Currently, observer data does not take an excessive amount of time to process, but the synchronization of additional data streams, such as electronic reporting of catch by fishermen, video monitoring to track catch, recording of landings by dealers, and other data collection mechanisms allow managers to track catch during the fishing season to prevent overfishing or exceeding catch limits, and can be used to increase the accuracy and availability of data to managers.

NOAA has developed national minimum eligibility standards for observers.⁴ These requirements are designed to ensure that observers are fully qualified and have the appropriate background and education needed to perform the necessary duties of an observer and to collect timely and accurate information. For example, observers are required to have a bachelor's degree from an accredited college or university with a major in one of the natural sciences and a minimum number of course credits in the biological sciences and math or statistics. This policy may also have the benefit of improving retention of observers through selection of high quality individuals, thereby reducing training costs, providing greater continuity in operations, and improving data quality. All observers are required to pass a rigorous 3-week training program with a minimum score of 80 percent on written or oral tests developed by the program. Some programs, such as the Northeast Fisheries Observer Program, require a passing score of 85 percent. The National Observer Program Advisory Team, comprised of observer program managers from across the country including NOAA staff, routinely reviews the national standards to determine if improvements are needed.

In addition to these requirements, all data collected by observers must go through a thorough quality assurance/quality control process. This is achieved through a debriefing process in which senior staff, referred to as debriefers or data editors, review the data submitted by the observer following each observed trip. The Northeast Fisheries Observer Program recently implemented a new policy requiring a minimum of two annual debriefings to occur in person at the NOAA observer program facility.⁵ This policy is intended to improve communication and feedback between the observers and debriefers and to improve observer retention and data quality.

Fostering an environment for collaboration and support of the observer program can lead to better communication, higher data quality, more efficient vessel placements, better representation of true fishing activity, and shared understanding of prioritizing assignments and data collection to best inform fisheries management and scientific research. Work is also underway to streamline the interconnectedness of fishery-dependent data collections, such as Vessel Trip Reports and Dealer Reports, which would hasten the data processing and analysis and improve quality of results.

Question 10. What more can NOAA Fisheries do to ensure that observer information is available in time to be useful to the fishermen who are paying for it?

Answer. As described above, all data collected by observers must go through a quality assurance/quality control process to ensure the accuracy of the data. While timeliness is important, observer programs strive to provide accurate data as quickly as possible, and would not want to sacrifice accuracy for the sake of timeliness. In the Northeast, observers submit electronic data, paper logs and worksheets, biological samples, and digital photographs within timelines specific to each program and trip type. For trips targeting groundfish (including all At-Sea Monitor trips), Atlantic herring or mackerel, or Atlantic squid, observers must electronically enter and upload haul and species information within 48 hours of the trip landing. For other trip types, a shorter trip summary of critical elements must be uploaded within 48 hours. Paper logs from all At-Sea Monitor and Northeast Fisheries Observer Program trips must be received by the Fisheries Sampling Branch within 5 calendar days by priority and tracking shipment.

Electronically recorded data are reviewed (edited) and observers debriefed (if necessary) the same day data are received. After this preliminary review, data are made available to end-users with approved access, sector managers (for groundfish data), and permit holders, via an inter-relational Oracle database and user-friendly website. Once the paper logs arrive, the editor reviews all data, compares it to the electronic data uploads for correctness, and debriefs the observer as necessary. If there are questionable data based on electronic data or other feedback, the paper logs would be reviewed as soon as they arrive. The data turnaround time is monitored and evaluated to ensure that all is being done efficiently while meeting multiple mandates and monitoring goals within an expected standard. As an example, for the Northeast Fisheries Observer Program, from January to April of 2013,

⁴ http://www.st.nmfs.noaa.gov/Assets/Observer-Program/pdf/Eligibility_Procedural_Directive.pdf

⁵ http://www.nefsc.noaa.gov/program_review/backgroundpapers/FSBportfolio.pdf

groundfish trip edits were fully loaded and audited within 15 days of trip landing (average from 626 trips), and non-groundfish trips were completed within 29 days of trip landing (average from 404 trips).

The Northeast Fisheries Observer Program and other observer programs are looking into additional ways to collect and submit data electronically in order to make information available more quickly to fishermen. For example, the Northeast Fisheries Observer Program and other observer programs across the country have begun incorporating handheld devices such as rugged iPads and toughbook computers to record and submit observer data electronically through wireless networks and satellite. Data confidentiality, IT security, and manageable costs are also taken under consideration.

From a national perspective, NOAA recently approved a policy regarding the adoption of electronic technology solutions in fishery-dependent data collection programs. This policy states:

“It is the policy of the National Oceanic & Atmospheric Administration’s (NOAA’s) National Marine Fisheries Service (NOAA Fisheries) to encourage the consideration of electronic technologies to complement and/or improve existing fishery-dependent data collection programs to achieve the most cost-effective and sustainable approach that ensures alignment of management goals, funding sources and regulations.”

The NOAA policy requires each region to evaluate the adoption of electronic technologies for the fisheries in their areas of responsibility. The core principle is a regionally-driven focus to promote shared information and improve coordination across regions to improve overall Agency data collection efficiency and effectiveness. The goal is to obtain the appropriate amount and quality of data at the least cost in time and money over the long term.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. EDWARD MARKEY TO
JOHN K. BULLARD

Rebuilding Timeframe Flexibility

Question 1. Concerns are often raised about the 10 year rebuilding time-frame for overfished stocks, but the law appears to provide flexibility for determining these timeframes. The law states that a time period for rebuilding the fishery shall “not exceed 10 years, except in cases where the biology of the stock of fish, other environmental conditions, or management measures under an international agreement in which the United States participates dictate otherwise.”

In developing rebuilding plans for fish stocks in the Northeast, has NOAA used this flexibility to set rebuilding times periods that are longer than 10 years?

Answer. Yes, we have used that flexibility many times in the Northeast to set rebuilding time periods that are longer than 10 years for the following stocks:

1. Atlantic cod—Georges Bank cod, 22 years;
2. Atlantic halibut—Northwestern Atlantic Coast, 52 years;
3. Yellowtail flounder—Cape Cod/Gulf of Maine, 19 years;
4. Yellowtail flounder—Georges Bank, 26 years;
5. Thorny skate—Gulf of Maine, 25 years; and
6. Acadian redfish (which rebuilt in 8 years but was scheduled for over 10 years).

Climate Impacts on Fisheries

Question 2. In your written testimony you indicate that the President’s Budget request for Fiscal Year 2014 includes a \$10 million increase for NOAA to fund research on the impacts of climate on fisheries, with a focus on Northeast groundfish. What does NOAA hope to accomplish by undertaking this research and how could that help improve stock assessments and ultimately benefit fishermen?

Answer. Dramatic changes in environmental conditions have been observed on the Northeast U.S. Continental Shelf over the last several decades. In 2012, the highest water temperature levels in over 150 years of continuous observation were recorded. This temperature pattern extended to the subarctic region and has been linked to broad-scale climate change. NOAA’s Northeast Fisheries Science Center has been monitoring changes in environmental and climate conditions and related ecological trends over the last several decades.⁶ Changes in the distribution patterns of fish and shellfish populations in relation to these changes and other anthropogenic fac-

⁶See <http://www.nefsc.noaa.gov/ecosys>

tors have been documented. Earlier analyses at the Northeast Fisheries Science Center demonstrated that up to two thirds of fish populations tracked by research vessel surveys moved further north, to deeper water, or both. A paper just released in the journal *Science*⁷ has confirmed and extended these results for the northeast and examined patterns throughout North America based on surveys conducted by NOAA and the Department of Fisheries and Oceans Canada. This work shows that local climate conditions, described by the rate and direction of change in temperature, can explain a significant part of the observed changes in distribution. These local climate conditions differ in different regions of the coast and, combined with constraints imposed by coastlines and other topographic features, control the direction of change. It is important to note, however, that not all species are changing distribution, not all changes are northward/poleward, and that factors other than climate are contributing to shifting distributions.

These observations hold important implications for our fishing communities. It is critically important for NOAA to work closely with stakeholder groups to learn from their observations, to share scientific information on observed changes, to attempt to provide projections of future change and their consequences for both ecological communities and human communities dependent on living marine resources. Anticipating and planning for change will be critically important in the ability of fishing communities to adapt to these changes in fisheries. We are strongly committed to working to make this possible and the funding levels provided for assessing the effects of climate change on fishery ecosystems (including humans) reflects the urgency and importance of this need. We can anticipate that if climate projections hold, fishing communities will encounter altered ecosystems in the Northeast, with an increasing dominance of species that prefer warmer waters. The impacts of ocean acidification will potentially be no less important. Good fishermen are good naturalists—they know the behavior and ecology of the species they catch. In a climate-changing world, the necessary adaptations by fishers will include learning the behavior and ecology of a new suite of species. Management systems will also have to adapt to the different mix of species encountered in the fisheries and issues related to allocation.

Including climate information in stock assessments will be critically important in understanding the synergistic effects of fishing and climate change and their implications for setting management targets that can account for these changes. Among the exploited species in a region, we can anticipate ‘winners’ and ‘losers’ with some species becoming more vulnerable to the joint effects of fishing and climate while others are expected to increase in abundance. Stock assessments that effectively incorporate the role of climate change on the basic biology, ecology, and fishery characteristics of shifting fish communities will be essential. Ultimately this will benefit fishing communities by providing better forecasts of fish stock sizes that can be achieved under changed ocean regimes.

The requested funding in the FY 2014 President’s Budget is a competitive grant program allowing a concerted effort by academic scientists, government researchers, stakeholder groups, and others working together to address an increasingly pressing need. The research will advance the understanding and projection of the impacts of climate variability and change on fishery stocks, their prey availability and habitats, and the communities and economies that depend on them and enhance the use and application of climate-related data and information in fisheries management and decision-making. The rich scientific resources in the Northeast will allow substantial progress to be made on these fronts. To take the next steps in preparing for change we can build on previous climate research and ecosystem programs in the region such as the NOAA–NSF GLOBEC and CAMEO Programs and on recent climate-fisheries modeling conducted with Atlantic cod, Atlantic croaker, and cusk. Understanding the nature of expected changes and planning for these changes will directly benefit fishing communities. The time horizon for planning and adaptation is short given the changes already observed but it is potentially feasible.

⁷M. L. Pinsky *et al.*, *Marine Taxa Track Local Climate Velocities* *Science* 341–6151:1239–1242 (2013).

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. MARCO RUBIO TO
JOHN K. BULLARD

Question. Should all fisheries managed under the Magnuson-Stevens Act be considered sustainable fisheries or should a third-party certification be required for a fishery to be deemed “sustainable?”

Answer. Federal fishery management under the Magnuson-Stevens Act is recognized as one of the strongest fishery management systems in the world, and it results in sustainable fisheries. In 2008, the Fisheries Centre at the University of British Columbia conducted an extensive analysis of the most active fishing countries in the world.⁸ They evaluated adherence to the United Nation’s Food and Agriculture Organization’s Code of Conduct for Responsible Fisheries, which covers fisheries management, and ranked the U.S. number 2 overall out of 53 countries, second only to Norway, which has far fewer number and diversity of fisheries to manage. U.S. seafood is responsibly harvested under a collaborative, science-based management program that works to both ensure sustainable fish populations and viable commercial, recreational, and subsistence fishing activities. In the U.S., fishery managers use the best scientific information available to prevent overfishing, actively rebuild depleted stocks, and minimize bycatch and impacts to habitat. Our process, based on 10 National Standards of sustainability, is designed for continuous improvement, and has helped the U.S. become a global leader in sustainable fisheries and seafood.

In the U.S., our fishermen’s commitment to and investment in stewardship and sustainable resources has not come without sacrifice. We need to build on their commitment and ensure these successes are rewarded in the market place. Seafood wholesalers, retailers, vendors, and consumers may be unaware of the sustainability of U.S. fisheries. NOAA is taking a proactive role in telling the story of the success of U.S. fisheries using a variety of approaches to highlight the value, quality, and sustainability of U.S. harvested and farmed seafood.

FishWatch is the Internet-based informational platform the agency uses to educate consumers on the responsible management of U.S. fisheries under the Magnuson-Stevens Act and the dynamic, science-based process behind sustainability. *FishWatch* delivers neutral, regularly updated information on seafood harvested in the United States. This tool provides factual information about the biological and ecological status of a fishery and lets users draw their own conclusions relative to satisfying a purchasing standard, based on science provided by NOAA. We continue to improve the content of *FishWatch* and explore opportunities for expanding its reach. To assist sellers, NOAA, at its discretion, issues declarative public statements in the form of letters in response to requests from harvest sector groups on whether a particular fishery is “sustainably managed” based on the Magnuson-Stevens Act National Standards. In those letters, we highlight the fact that, in the United States, we have virtually eliminated overfishing and are rebuilding overfished stocks to sustainable levels in all federally-managed fisheries.

In response to growing questions and concerns from our constituents about third-party certification, last year, we asked our Marine Fisheries Federal Advisory Committee (MAFAC) to conduct a policy study of what role they believe NOAA should play in seafood certification. The Committee is evaluating the pros and cons of an expanded agency role, up to and including initiating some form of a consumer-facing NOAA ecolabel for U.S. wild-caught and aquaculture products. MAFAC has been seeking input from buyers and sellers of seafood and gathering information from existing certification organizations to see what an appropriate role for NOAA would be. MAFAC was scheduled to meet in October 2013 to discuss its policy study, but that meeting was postponed due to the government shutdown. MAFAC has not yet rescheduled its meeting, and we do not expect a final report of the Committee’s work until after it is able to meet.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARK BEGICH TO
C.M. “RIP” CUNNINGHAM, JR.

Challenges in New England Fisheries Management

Question 1. New England’s fisheries have faced more challenging management issues than other regions.

For example, New England has eight stocks “subject to overfishing,” and 13 categorized as “overfished,” including a number of historically and commercially impor-

⁸Pitcher, T.J., Pramod, G., Kalikoski, D. and Short, K. 2008. Safe Conduct? Twelve Years Fishing under the. UN Code. WWF, Gland, Switzerland. 66 pp.

tant species such as cod. By contrast, the mid-Atlantic has none. What is the Council doing to address the historical overfishing of iconic groundfish, such as Atlantic cod and the resulting hardship to New England fishermen?

Answer. The Council has developed measures to eliminate overfishing of cod and any other stocks with overfishing including reducing catch limits to scientifically recommended levels. In terms of reducing hardship to New England fishermen, please see the answer to the next question below.

Ending overfishing on cod stocks has proven exceptionally difficult. In part, this has been because of assessment uncertainty but an additional factor is that the productivity of our cod stocks has declined, perhaps due to warming ocean temperatures. As a result the stocks have been slow to recover from years of excessive catches in the late 1980s through the 1990s.

Question 2. Do you feel the Council has done as much as it can to help fishermen in New England without undercutting the recovery of the fishery?

Answer. Yes, the Council explored the legally available strategies for gradually reducing fishing, improving flexibility and reducing costs to fishermen by exploring increased access to closed areas, allowing vessels to land smaller fish to reduce the amount of dead discarded fish, increasing trip limits for alternative species within responsible limits and other ways to give fishermen more flexibility to respond to changing circumstances. Many of these recommendations required approval by the National Marine Fisheries Service, and not all have been implemented in the manner requested by the Council.

Question 3. What additional steps are needed to ensure we don't end up with a fishery collapse similar to the one that occurred in Newfoundland, Canada, in the 1990s?

Answer. Although perhaps not the main cause, scientific error or errors in interpreting the science contributed to the collapse of the northern cod stocks. In 2010 and 2011, Gulf of Maine cod catch limits were based on a stock assessment that greatly overestimated small cod entering the population due to a sampling problem. Also a review of fish growth rate data revealed that earlier information about growth rates used in projections of stock sizes and landings had been systematically overestimated. Finally many recent stock assessments have overestimated stock size and underestimated fishing mortality (known as retrospective error). This also was a problem with assessments for the Canadian Northern cod stock before its collapse. The causes of retrospective error can include unaccounted for natural mortality, fishing mortality or a change in catchability of fish in scientific surveys. The amount of the error is virtually impossible to predict, and the best that can be done is to adjust projections by the level of historic retrospective error, which may be inadequate. The Council relies on its Scientific and Statistical Committee, several of whom have had experience with similar fisheries science and management problems in Canada and other countries, to make catch level recommendations taking into consideration such scientific uncertainties.

The Council also is working with the Northeast Fisheries Science Center to provide more timely stock assessment advice to inform catch limits set by the Council. The Council needs more frequent assessments of these critical stocks to make sure that appropriate catch limits are set.

Question 4. New England has been plagued with stock management issues more so than other regions, including the nearby mid-Atlantic. Why has New England had so many problems? Do you believe that it's primarily a management or a biological issue?

Answer. There are many reasons for the problems with the management of some groundfish stocks, but others have responded well to management efforts: redfish, Georges Bank haddock, Georges Bank winter flounder, Atlantic sea scallops, monkfish, sea herring, whiting or Mid-Atlantic species. Many New England groundfish stocks were subject to overfishing long before the MSA was adopted. In some cases, overfishing and depletion began in the 19th century and while others began with the arrival of large foreign fleets in the 1960s. Other factors included fishermen's resistance to scientific advice when fishing level reductions were recommended, the failure of quota management in the early 1980s because of the lack of adequate monitoring and a resistance to economic rationalization despite high levels of excess capacity. Adding to these problems have been environmental stress on inshore stocks caused by development, increased natural mortality on some species from protected predators and possible environmental stressors such as warming ocean temperatures because Northeast multispecies groundfish stocks are at the southern end of their geographical range.

As a result, I do not believe that the failure to rebuild some groundfish stocks can be attributed solely to biology or management. The two are inextricably linked.

While I agree that some past decisions have been faulty, over the last ten years most management decisions were consistent with the scientific advice presented to the managers and yet stocks have not responded as expected.

Follow-up on Touchstone Report on New England Fishery Management

Question 5. NOAA completed an independent assessment and review of New England fishery management, conducted by the Touchstone Consulting Group, “A Review of the New England Fishery Management Process”. The report primarily drew from stakeholder input and examined the effectiveness of the New England Fishery Management Council, the Northeast Fishery Science Center, and the Northeast Regional Management Office. The recommendations made by the report include the need to simplify, streamline, and eliminate many redundant management practices that are seen by stakeholders as cumbersome and capricious, and the formulation of a strategic vision and a balance between conservation and service to the industry. In addition, the report noted the need for improved quality and timeliness of data. Following the release of the report, NOAA announced that it would adopt a series of immediate actions and near-term plans to incorporate the report’s recommendations.

Chairman Cunningham, your predecessor, John Pappalardo, requested that NOAA conduct a comprehensive review of the region’s fishery management process. In the two years since that report was issued, do you feel the agency has taken adequate action on its findings? In your view, have any needed reforms fallen through the cracks?

Answer. Although there has been progress on many of the recommendations in the report and new NOAA/NMFS leadership in the region is committed to improving collaboration with the Council, progress on some important recommendations is slow. These include reducing the redundancy created by NEPA and the MSA and improving early guidance from the NMFS regional office on the development of management actions by the Council. On the positive side, NOAA/NMFS and the Council recognize the importance of these issues and continue working diligently to make progress on them. In terms of involving stakeholders, the Council has taken steps to improve participation by and transparency for stakeholders by formally including participation of advisory panel chairs in committee meetings, convening a workshop with all advisors and the SSC on ABC control rules, initiating a project to improve our website for all stakeholders and the public, and holding collaborative meetings at the Committee level to tackle problematic issues.

Improvements to Scientific-Based Management

Question 6. The MSRA added significant provisions that were groundbreaking, elevating the role science plays in the fishery management process. The resulting data and modeling needs were known to be costly, and following enactment, Congress provided additional funding to NMFS to implement these new requirements. Since that time, however, funding for NMFS has steadily decreased, and the President’s request for NMFS in FY 2014 would continue that trend. It is an open question whether current funding levels for NMFS are sufficient to achieve the management goals envisioned by the MSRA.

How is the New England Fishery Management Council working with scientists to strengthen fisheries science and how will that help the Council establish accurate and timely catch limits and accountability measures with buy-in from the industry?

Answer. Following the 2006 reauthorization of the MSA, the Council has implemented annual catch limits (ACLs) for all managed stocks in compliance with the acceptable biological catch (ABC) levels recommended by its Scientific and Statistical Committee. Additionally ACLs for all stocks must meet the approval NOAA/NMFS. Also as mentioned in response to question 3, the Council also is working with the Northeast Fisheries Science Center to provide more timely stock assessment advice to inform catch limits set by the Council.

The most important step that can be taken to achieve industry buy-in is to identify catch limits that actually meet mortality targets. For many groundfish stocks this has proven elusive. Industry loses confidence in the science when catches remain below quotas but overfishing continues. We are working with the Northeast Fisheries Science Center to address this problem.

Question 7. How can additional cooperative research successfully support science-based fisheries management?

Answer. There are many areas in which cooperative research is needed to support science-based fisheries management. Cooperative research is essential for supplementing or providing information on fish stock distribution under changing environmental conditions, bycatch minimization and more detailed abundance information than can be provided by current fishery-independent scientific sampling. Fi-

nally, industry-based surveys can supplement our understanding of population trends and build confidence in government surveys.

Question 8. Current funding levels only allow the Northeast Fisheries Science Center to conduct annual updates for about ten to twelve stocks, resulting in individual assessments that are often separated by four or five years. How critical is it that we dedicate more resources for data collection and improved and more frequent stock assessments, particularly in the context of addressing the groundfish fishery challenges in the medium term?

Answer. It is extremely important to have more frequent stock assessments. The Council's Groundfish Plan Development Team and SSC have evaluated the performance of groundfish stock projections and have found them to be unreliable for setting catch limits if based on stock assessments more than about two years old. If recent assessments are not available, projections tend to rely heavily on models to predict new recruitment and natural mortality rather than actual observations. As a result they may include a lot of "paper fish"—fish that are projected to be available based on assumptions—instead of fish that have been observed in the catch or through scientific sampling. Additionally, it is virtually impossible to predict changes in natural mortality due to predation and other causes.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. RICHARD BLUMENTHAL TO C.M. "RIP" CUNNINGHAM, JR.

Northern Edge, Georges Bank Closed Area II

Question 1. The "Northern Edge" of Georges Bank Closed Area II is home to tens of millions of pounds of scallops, but it has been closed to scallop fishing for nearly twenty years. Georges Bank haddock are fully rebuilt and highly abundant along the "Northern Edge." Scallops and haddock can be harvested in this area with less potential for by-catch of rebuilding species such as Georges Bank yellowtail flounder. High catch rates of target species, such as scallops and haddock, also allow fisherman to spend less time with their fishing gear deployed on the ocean bottom. What progress is the New England Council making to open the "Northern Edge" to controlled fishing for abundant species such as haddock and scallops?

Answer. The Council is developing an amendment to update essential fish habitat (EFH) designations, EFH protection areas and dedicated habitat research areas for all of its fishery management plans and expects to approve a draft amendment in late 2013 or very early in 2014. The amendment will consider allowing more access for controlled fishing for abundant species such as haddock and scallops on the Northern Edge of Georges Bank while still protecting EFH. The need for increased access will be balanced against the statutory requirement to minimize the adverse effects of fishing on essential fish habitat.

Question 2. What changes can be made in the law to help fishery management be able to react more quickly to changing resource conditions?

Answer. The Council needs more frequent stock assessments to support changes in specifications. Despite using multi-year specification cycles, routine assessments often are not available to support these actions. The result can be reliance on outdated information or infrequent adjustments under changing stock conditions.

Also, the MSA should exempt routine adjustments in FMP specifications (overfishing levels, ABCs, ACLs, annual catch targets and other routine measures) from extensive NEPA analysis and provide for a streamlined regulatory review process for these actions.

Question 3. What actions is the Council taking to shift towards fishery management that is grounded in ecosystem considerations like habitat, the role of forage fish, and changing ocean conditions due to climate change and pollution?

Answer. The Council has been taking into account ecosystems considerations in several ways. When stock assessments incorporate information about ecosystems considerations, the information affects the choice of reference points such as F_{MSY} , ABCs, OFLs and ACLs. This was the case for a recent assessment for Atlantic sea herring, which is an important forage fish for many other fish and marine mammals. Secondly, the Council has designated EFH protection areas chosen based on their importance to various life stages for a variety of fish species. The Council also provides input to the Northeast Regional Ocean Council on regional ocean planning issues.

Additionally, the Council has explored a more formal approach to ecosystem based management. Progress has been slow because of several high priority challenges that needed to be addressed—such as the recent efforts to end overfishing on cod

stocks. The Council will participate in a climate-change seminar with our neighbors, the Mid-Atlantic Fishery Management Council, in the spring of 2014.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. EDWARD MARKEY TO
C.M. "RIP" CUNNINGHAM, JR.

Ecosystem-Based Management

Question 1. In your written testimony, you indicate that there are some provisions of the Magnuson-Stevens Act that limit the ability to manage fisheries using an ecosystems approach. Please provide the specific provisions you think hinder ecosystem management and your suggestions of how to improve them.

Answer. National Standard 1 requires each stock to be managed to achieve a biomass level (B_{MSY}) of providing maximum sustainable yield (MSY) on a long-term average basis and that if any stock falls below $\frac{1}{2}$ the biomass target (B_{MSY}) it must be rebuilt within the 10-year time-frame if possible. Scientists have informed the Council that this focus on single species management will make it very difficult to manage stocks as a group and that it is virtually impossible for all managed stocks to be at their target levels simultaneously, particularly if there are predator-prey interactions between stocks. For example, spiny dogfish may compete with cod for food and marine mammals that depend on cod and herring as major components of their diet.

There are also issues with who has the management authority. Under EBFM, management should take into consideration large marine ecosystems (LME's) as the management areas. Currently, jurisdiction is set up under arbitrary regions. If true ecosystems based fisheries management is to be put in place, management authority and process issues will have to be addressed.

Building Trust in Fisheries Management

Question 2. Your written testimony also indicates that there has been "an erosion of trust in both the scientific advice and the management system" in recent years and the need for more stock assessment advice. How can additional resources for science help the New England Fishery Management Council work with scientists to strengthen fisheries science and how will that help the Council establish accurate and timely catch limits and accountability measures with buy-in from the industry?

Answer. As mentioned above, the Council needs more frequent stock assessments to support changes in specifications. Despite using multi-year specification cycles, routine assessments often are not available to support these actions. The result can be reliance on outdated information or infrequent adjustments under changing stock conditions.

Also funding for cooperative research can improve buy-in from industry. Industry-based surveys can supplement our understanding of population trends and build confidence in government surveys and the effectiveness of management measures

Seafood Sustainability Certification

Question 3. In your written testimony, you discussed the possibility of creating a certificate of sustainability through the Magnuson-Stevens Act. Is there something that prevents that from happening under the current law?

Answer. Although there is nothing that prevents the creation of a certificate of sustainability by NOAA/NMFS under the current law, competing demands for scarce resources can prevent this from being a priority without more explicit guidance from Congress.

Data Confidentiality

Question 4. In your written testimony, you indicate that there are some data confidentiality provisions of the Magnuson-Stevens Act that limit the ability managers and the public to understand the effects of management decisions. Can you please provide the specific problematic provisions and your suggestion of how to improve them?

Answer. SEC. 402. (b)(1) (Information Collection; Confidentiality of Information) states that "Any information submitted to the Secretary, a State fishery management agency, or a marine fisheries commission by any person in compliance with the requirements of this Act shall be confidential and shall not be disclosed" with several exceptions including the following:

- (E) when such information is used by State, Council, or Marine Fisheries Commission employees to verify catch under a limited access program, but only to the extent that such use is consistent with subparagraph (B);

- (F) when the Secretary has obtained written authorization from the person submitting such information to release such information to persons for reasons not otherwise provided for in this subsection, and such release does not violate other requirements of this Act;
- (G) when such information is required to be submitted to the Secretary for any determination under a limited access program; . . .

However, there are no exceptions for making this information public when the Council is developing limited access or catch share programs. Because catch history is often used to allocate resources in catch share systems, permit holders need to know the catches attributed to their permits. It is often impossible for current permit holders to obtain releases of information from individuals who may have had the same permit in the past but who cannot be located by the current permit holder. Therefore this provision makes it difficult for the Council to develop limited access or catch share management programs or for permit holders to support such programs because they cannot determine how management alternatives might affect their quota allocations.

Suggestions that would eliminate this problem are: (1) allow all previous catch history information associated with a current permit to be released to the current permit holder(s); and (2) allow councils to use this information in the development of management programs as long as the information is not explicitly identified with a specific individual, entity or permit.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARCO RUBIO TO
C.M. "RIP" CUNNINGHAM, JR.

Correcting Comment by Mr. Cunningham: Senator Rubio asked me a question at the hearing about flexibility and I somewhat misspoke in my response. The NEFMC does not have a Council position on flexibility. I was trying to give the sense of the Council. Flexibility is one of those things that means different things to different participants in the process. It was the Council sense that focusing on ending over-fishing was the most important and controllable aspect of the management process. My own feeling on the flexibility issue is a little more precautionary. Also, I applaud the creative way that the MAFMC was able to find flexibility within the current MSA.

Question 1. As you know, it has become common practice for the Administration to divert in their annual budget the Saltonstall-Kennedy funds received by NOAA away from the authorized uses and into the agency's Operations and Research fund. Do you agree with this diversion or do you feel these funds should be used for their intended purposes and in addition to the funds appropriated by Congress to NOAA for fisheries research?

Answer. From my perspective and I believe the sentiment of the Council, that research support and enhancement is at the top of the list to maintain and improve the Council process. With that in mind, it would be a real benefit if funding could be found to support the regional science centers in their effort to support the Council's requirements for real time science to support the mandated Annual Catch Limits and Accountability Measures. I realize that we are in a fiscally constrained time, so using S-K funding, which has research as one of its objectives, seems to me to be reasonable.

Question 2. How would you prioritize National Standard 1 and National Standard 8 against each other? Should one standard have higher prioritization?

Answer. Again, from my perspective, the top priority of the Council process should be to rebuild sustainable fisheries resources. Strong resources will float all boats (pun intended). On the other hand if the Council process fails to maintain sustainable resources, then every fishing community will suffer. I would prioritize NS1 at the top.

Question 3. What policy changes are necessary to provide clarity on how the National Environmental Policy Act and the Magnuson-Stevens Act align?

Answer. The eight fishery management councils have tried to work with the National Marine Fisheries Service (NMFS) to reduce the overlap and differences between the National Environmental Policy Act (NEPA) and the Magnuson-Stevens Act (M-S Act) with little success. Management actions must be drafted with both laws in mind, and most fishery management actions are accompanied by a NEPA document. As one illustration of an inconsistency between the two laws, under the M-S Act the NMFS can only approve, partially approve, or disapprove a management measure submitted by the Council. But to comply with NEPA—which is as an agency responsibility—NMFS is supposed to consider all alternatives in the

NEPA document, and is prohibited from making a decision before the public process is completed. So NMFS publishes a NEPA document that pretends any alternative can be selected when the reality is that the agency's choices are constrained by the M-S Act language and the Council's choice of a proposed action. There are also different requirements for public input between the two laws that can cause confusion. The M-S Act should also exempt minor regulatory actions from the need for NEPA analyses. Finally, it should be clarified that the NMFS cannot add alternatives to a document (under the excuse that NEPA requires additional alternatives) that have not been developed by the Council.

Question 4. Should all fisheries managed under the Magnuson-Stevens Act be considered sustainable fisheries or should a third-party certification be required for a fishery to be deemed "sustainable?"

Answer. As outlined in my testimony, the NEFMC does not see any need for third-party certification. MSA has the most stringent management protocols of any country. A certification process should be set up under NOAA that would put all U.S. fisheries on an equal footing.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARK BEGICH TO
RICHARD B. ROBINS

Question 1. What role have the 2006 amendments to the Magnuson-Stevens Act, specifically changes to require the fishery management councils to follow the advice of scientists and to establish accountability measures when setting annual catch limits, played in helping end overfishing, rebuilding depleted fish populations, and moving America's fisheries on a path toward sustainability?

Answer. On a national level, the 2006 reauthorization of the Magnuson-Stevens Act (MSA) has contributed to significant progress toward ending overfishing and rebuilding depleted stocks. The Mid-Atlantic Council has long considered scientific advice to be the cornerstone of effective fisheries management. The requirements of the 2006 Amendment required significant changes for some of the regional councils, particularly those that had been using input controls as their primary form of management. In contrast, the Mid-Atlantic Council had already implemented science-based catch level recommendations through enforcement of hard quotas (which effectively controlled fishing mortality) in response to the requirement of the 1996 Sustainable Fisheries Act (SFA) to rebuild overfished fisheries.

By the time the 2006 MSA reauthorization was approved by Congress, the Mid-Atlantic Council had already ended overfishing and established rebuilding plans for all of its fisheries prior to the 2006 reauthorization. As a result, bringing MAFMC FMPs into compliance with the 2006 MSA reauthorization required only minimal changes with respect to implementing Annual Catch Limits (ACLs) and (AMs) in Mid-Atlantic fisheries. The Mid-Atlantic Council became the first regional fishery management Council in the Nation to approve measures to comply with the MSRA through adoption of its Omnibus ACL/AM Amendment in August 2010. This amendment codified a framework for the specification of ACLs and AMs and established a policy which provides guidance on the specification of annual catch limits with regard to the risk of overfishing.

It is important to note that rebuilding successes since 2006 should not all be attributed to the stricter requirements of the 2006 reauthorization (just as failures since 2006 should not be attributed to failure to comply with the requirements of the Amendment). Like the Mid-Atlantic, a number of Councils began working to rebuild overfished stocks following the passage of the 1996 Sustainable Fisheries Act, and rebuilding was already well underway for many U.S. fisheries. However, many of our Nation's fisheries had already become severely depleted by that point, and rebuilding can be a slow process that has been confounded in some U.S. fisheries by environmental conditions and other anthropogenic factors that councils are unable to control.

Question 2. What benefits have Mid-Atlantic fishermen and their communities enjoyed from ending overfishing and rebuilding fishery stocks?

Answer. The benefits of ending overfishing and rebuilding overfished stocks are generally manifested as greater stock productivity and increased sustainable harvests, which typically result in greater economic productivity and social stability in fishing communities. For example, summer flounder stock rebuilding has allowed for increases in allowable catches with attendant social and economic benefits being accrued by the commercial sector. Likewise, the recreational sector of this fishery has enjoyed greater access to the resource via higher bag limits, greater retention of their catch through size limit adjustments and longer fishing seasons.

In addition to the obvious social and economic benefits of increased quotas when stocks are rebuilt, there are other more subtle benefits to rebuilding fish stocks. First, fully rebuilt stocks are generally comprised of a greater proportion of larger, older fish relative to an overfished stock. This tends to increase the reproductive capacity of the stock and also contributes to greater stock stability since healthy stocks are less dependent on incoming annual recruitment events to sustain harvests.

Second, healthy fisheries tend to be more resilient to the stresses of temporary overfishing and environmental changes. This means that a healthy stock is less likely to be significantly altered if the annual catch limit (ACL) is set too high during a given year due to an inaccurate estimation of stock size. The resilience of our fisheries to environmental stressors will become increasingly important as we face new challenges related to global climate change, such as ocean warming and acidification.

Question 3. How can we better support fishermen struggling to make ends meet as depleted stocks rebuild?

Answer. By nature of reducing total catch, all rebuilding plans contribute to negative short-term economic impacts. The councils recognize that a reasonably short rebuilding time is desirable because healthy stocks provide higher catch levels than stocks that are overfished, thus providing greater long-term socio-economic benefits. However, there are always tradeoffs between biological, social, and economic outcomes, and the councils need flexibility to evaluate the tradeoffs associated with a wider range of timelines. However, the councils are optimally positioned to develop strategies that will rebuild depleted fisheries while minimizing adverse economic impacts. Several modifications to the Magnuson-Stevens Act would help the councils to support fishing communities more effectively:

1. *Establish less prescriptive rebuilding timeline requirements.* Giving the councils slightly more flexibility in the development of rebuilding plans would enable more thorough evaluations of the social, economic, and biological tradeoffs associated with a range of rebuilding plans and timelines. The 10-year rebuilding timeline often precludes any meaningful evaluation of social and economic consequences associated with an appropriate range of rebuilding timelines, and results in an inconsistency in the treatment of species that can be rebuilt in less than 10 years relative to those that cannot be rebuilt within that period. This inconsistency should be resolved by establishing the maximum rebuilding timeline as T_{MIN} plus one mean generation time. Additionally, councils should have additional flexibility in revising rebuilding rates and dates when environmental conditions or biological performance (e.g., recruitment) impede a stock's rebuilding trajectory. These measures could potentially allow the councils to mitigate some of the social and economic consequences of rebuilding without jeopardizing the ability of a stock to rebuild to its biomass target.

Successful management of U.S. fisheries should not be defined narrowly in biological metrics. On the contrary, our fisheries should be managed for biological, ecological, social, and economic success. This could be enhanced during stock rebuilding by providing carefully targeted flexibility and by more effectively incorporating social and economic objectives in stock rebuilding plans. Successful rebuilding in biological terms does not guarantee successful social or economic outcomes at the end of a rebuilding plan, particularly if that rebuilding plan does not address the economic problems that are often attendant at the outset of a rebuilding plan when a stock is depleted.

2. *Promote regulatory stability.* For U.S. fisheries to be productive, commercial and recreational fishing operations need to be managed for enhanced stability and predictability to the extent practicable. Frequent changes in regulations create significant challenges, and often result in economic losses, for commercial and for-hire fishermen in the Mid-Atlantic region. Quotas must ultimately be aligned with stock assessments, so some adverse outcomes are unavoidable in certain fisheries that may have experienced chronic overfishing and overcapacity. However, limited flexibility to eliminate overfishing under certain circumstances over a multi-year period would allow the councils to substantially mitigate short-term social and economic dislocation in our managed fisheries. This could be particularly important when a stock assessment changes dramatically. Examples of stocks that were rebuilt prior under these types of approaches prior to the 2006 reauthorization include King mackerel and Spanish mackerel in the South Atlantic, which were rebuilt within a generation time and still allowed a viable fishery to operate.

3. *Establish and fund a national seafood certification for U.S. fisheries managed under MSA.* The U.S. has one of the strongest fishery management programs in the world, and several councils have voted to support establishing a U.S. fisheries sustainability certification in the next reauthorization. In a market transformed by globalization, the sustainability of U.S. fisheries needs to be affirmed, and U.S. fishermen and processors should be able to identify and label their products as fish that were harvested responsibly and sustainably under the gold standards of the Magnuson-Stevens Act. A public affirmation of the core strengths of the U.S. management system would be an important step to facilitate education, awareness, and marketing for the benefit of U.S. fisheries.

Question 4. How is the Mid-Atlantic Council working with scientists to strengthen fisheries science and how will that help the Council establish accurate and timely catch limits and accountability measures with buy-in from the industry?

Answer. The MAFMC works closely with scientists at the Northeast Fisheries Science Center (NEFSC) to continually improve the stock assessments which form the basis for setting catch limits for Council managed fisheries. This process begins with the identification of research needs and data gaps during the specification of ABC by the SSC and the subsequent specification of catch limits and accountability measures by the Council. The Council then works with the SSC to prioritize research needs to identify the most critical research needs across our portfolio of managed species within the Councils five year research plan. These research needs are then forwarded to the NEFSC for consideration within the Center's research prioritization and planning process. In many cases, research and analytical questions are incorporated into the terms of reference for stock assessments and are addressed directly when stock assessments are being conducted by the appropriate assessment working groups.

In addition to working with NEFSC scientists, the Council implemented an innovative Research Set Aside (RSA) Program in 2002 whereby the Council sets aside up to 3 percent of the annual quota for each species to fund scientific research. The intent of the RSA program is to conduct research projects cooperatively with the fishing industry which directly address the research needs identified within the Councils' five year research plan. Since its inception, the Council has funded in excess of 10 million dollars in research which addressed a wide range of research topics pertinent to Council related assessment and management needs. The program has recently focused on funding the Northeast Assessment and Monitoring Program (NEAMAP) which is a fishery independent trawl survey designed to provide information on abundance and distribution of fish stocks in the inshore waters of the Mid-Atlantic not covered by the NEFSC trawl survey program. While the NEAMAP time series is relatively short compared to other long term surveys, the Council expects the NEAMAP data to be fully incorporated into most of the stock assessments for Mid-Atlantic species. The information from this survey has already been incorporated into several stock assessment analyses and was utilized in assessing the status of the Atlantic sturgeon population along the Atlantic Coast.

The NEAMAP survey is unique within the Mid-Atlantic since it is conducted on a commercial fishing vessel operated by a commercial fishing captain and crew. The onboard team of scientists from the Virginia Institute of Marine Science (VIMS) monitor and collect the survey data. This example of collaborative survey work enjoys an exceptionally high degree of confidence from the fishing industry and should serve as a model for cooperative research that should be expanded strategically in the Northeast region of the U.S.

In addition, the Council has directly funded a Management Strategy Evaluation study of ABC control rule performance which was conducted by several SSC members through the University of Maryland. This work evaluated the performance of a range of ABC control rules using simulations of known or "meta populations" for both data "rich" and data "poor" species. Additional funding to continue this work was recently procured through the NMFS Office of S&T under the National Stock Assessment Improvement Program. The expected benefits of this research include an evaluation of the performance of various ABC control rules under a range of stock conditions and information levels which will directly inform the Councils current ACL/AM process recently implemented to comply with the 2006 reauthorization of MSA.

Question 5. How can additional cooperative research successfully support science-based fisheries management?

Answer. Cooperative research programs provide a means to improve the accuracy of stock assessments while engaging stakeholders in the research process. Despite the importance of these programs, many of them face inadequate or uncertain funding from year to year. The Northeast Cooperative Research Program should be ex-

panded to include additional funds for more research projects pertinent to the assessment and management of Mid-Atlantic fish stocks.

The Mid-Atlantic Council has funded the Northeast Area Monitoring and Assessment Program (NEAMAP) through its Research Set-Aside (RSA) program for the past 6 years, but the allocation of these funds solely to NEAMAP prevents us from funding other projects that address our annual research priorities. NEAMAP has become a core monitoring program in the Mid-Atlantic, and procuring dedicated, long-term funding from Federal sources to ensure that the NEAMAP Program continues into the future is the Council's top priority in terms of funding scientific research. Saltonstall-Kennedy funds should be dedicated to permanently secure the future of the NEAMAP survey and to expand cooperative surveys and research strategically in the Mid-Atlantic. If long-term dedicated funding is secured for the NEAMAP sampling program, additional RSA funds could be made available to conduct fishery research in other topic areas identified in the Council's five year research plan and in many stock assessments for Mid-Atlantic species. Increased funding of existing cooperative research would help to address important practical research and management questions identified in our FMPs.

Question 6. Current funding levels result in individual assessments that are often separated by four or five years. The status of a number of Mid-Atlantic species cannot be determined because of outdated information. How critical is it we dedicate more resources for data collection and improved and more frequent stock assessments?

Answer. Analytical stock assessments form the foundation for the proper specification of ACLs and ultimately determine the success or failure of our Federal fishery conservation and management system. Setting appropriate ACLs and AMs is challenging, if not impossible, without adequate data, yet many federally managed fisheries continue to be defined as "data-poor." Improvement of stock assessments, particularly for data-poor stocks, should be the highest research priority of the National Marine Fisheries Service in both the Northeast and throughout the U.S.

The new ACL/AM requirements have placed a major burden on the NEFSC to provide the data and analysis needed to set appropriate catch levels and track the performance of fisheries through time as required under MSRA. In the Northeast region, the demands for stock assessments have exceeded the NEFSC's ability to provide high-quality stock assessments at the frequency needed to manage our fisheries as required under the current mandates of the Magnuson-Stevens Act.

As noted earlier, the Council implemented a risk policy with respect to the implementation of its Acceptable Biological Catch (ABC) control rules. The risk policy provides a probabilistic framework to set ABC levels, and ultimately ACLs, relative to both the status of the stock and the level of scientific uncertainty associated with an assessment. Under this policy, the Council adopts more conservative harvest levels if stock levels decline and/or if scientific uncertainty increases. Allowable harvest levels—and hence, benefits to society—could be set at higher levels if the stocks we manage were assessed with a higher degree of frequency and certainty. Unfortunately, the information and assessment levels of roughly half of the stocks are insufficient for management under this probabilistic framework, meaning that the SSC and Council must use ad hoc methods of setting ABCs for those species, which is likely resulting in lost yield. Quotas set under these ad hoc methods for data-poor stocks are also less predictable and have resulted in a loss of stability and yield in some of our most important fisheries. Major improvements in the assessment of Mid-Atlantic stocks could be accomplished through increased funding for data collection and analysis to support better and more frequent stock assessments by the NEFSC.

Another critical issue relative to stock assessments is the lack of public trust in the scientific data used to support management decisions. Stakeholder engagement is a critical element of effective fishery management, and improving the overall scientific foundation of our management system will require that particular attention be paid to addressing the lack of public trust in stock assessments through clearer communication, greater transparency, and an increased stakeholder involvement in data collection.

Question 7. Can you describe the Mid-Atlantic Fishery Management Council's plan to adopt "ecosystem approaches" to fishery management?

Answer. For nearly a decade the Council has been steadily moving toward a more ecosystem-based approach to managing Mid-Atlantic fisheries. The Council developed its first single-species fishery management plan for Atlantic surfclams in 1977. In the following years, 11 more species were added to the Mid-Atlantic Council's authority. Through periodic amendments, several of the Council's FMPs have evolved to become multi-species plans. The Council currently manages its 12 species under

6 management plans. Although the multi-species plans allow the Council to take into account similarities and interactions among closely related fisheries, the Council also faces an array of broad ecosystem level issues that require a more integrated, comprehensive management approach. This issue has been expressed as a top priority among all stakeholder groups, including environmental groups and commercial and recreational fishermen.

In October 2011, the Council hosted the Fourth National Scientific and Statistical Committee Workshop, which examined the various approaches being taken by the Councils nationwide relative to ecosystem considerations in fisheries management. Following the workshop, the Council voted to move forward with development of an Ecosystem-Approach to Fisheries Management (EAFM) Guidance Document. This approach—which the Council has described as *evolutionary* rather than *revolutionary*—recognizes the biological, economic, social, and physical interactions among the components of ecosystems and attempts to manage fisheries to achieve optimum yield taking those interactions into account.

The purpose of the EAFM guidance document is to enhance the Council's species-specific management programs with more ecosystem science, broader ecosystem considerations, and coordination of management across FMPs and the relevant ecosystems. The EAFM guidance document will focus on four key areas relative to ecosystem considerations:

1. Biological and ecological interactions, including management of prey species and food web dynamics;
2. Ecosystem level habitat considerations-taking an ecosystem approach to essential fish habitat designation/protection and quantitatively linking habitat science and conservation to fishery outcomes;
3. Systematic oceanographic change-identification of key factors affecting the Mid-Atlantic Bight ecosystem including warming, acidification, circulation patterns, etc.; and
4. Social and economic considerations—integration of social and economic analyses into OY specifications.

The EAFM guidance document will provide a framework for considering policy choices and trade-offs as they affect FMP species and the broader ecosystems. Rather than drastically change the Council's management approach, the final product will serve as a non-regulatory umbrella document to guide policy decisions as the Council transitions from single-species management toward an ecosystem-based approach (*i.e.*, the Council envisions a practical roadmap to ecosystem approaches to fishery management).

Question 8. What is the Mid-Atlantic Fishery Management Council doing to protect critical fish habitats like deep sea corals and what more should be done to protect fish habitat?

Answer. Habitat conservation is an important component of the Council's Ecosystem and Ocean Planning program. Healthy fish habitat is essential to sustainable, productive fisheries. Marine fish depend on healthy habitats for survival, and many species require specific types of habitats for spawning, breeding, feeding, and growth. The 1996 reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) set forth new provisions which allowed for greater involvement of the regional fishery management councils in the identification and protection of important fish habitats. In particular, it required the Councils to designate Essential Fish Habitat (EFH) for all managed species and gave the Council authority to designate Habitat Areas of Particular Concern (HAPCs) for each species.

In addition to identifying critical fish habitats for protection, the Council is also responsible for ensuring that management measures minimize, to the extent practicable, any adverse impacts to essential fish habitat by fishing gears. The Mid-Atlantic Council has used a variety of management measures effectively to minimize the impacts of fishing activities. These measures include restrictive harvest limits, gear-restricted areas for small-mesh fisheries, and closed areas in selected canyons.

Deep Sea Corals

The Council is currently developing an amendment to protect deep-sea corals from damage by bottom-tending fishing gear. Deep-sea corals provide habitat for many commercially and recreationally important species in the Mid-Atlantic. Generally fragile and slow-growing, deep sea corals are particularly vulnerable to physical disturbances. Several management measures are already in place to protect deep sea corals, including Tilefish Gear-Restricted Areas (GRAs) in four canyons (Lydonia,

Oceanographer, Veatch, and Norfolk) and closures of two canyons (Lydonia and Oceanographer Canyons) to the squid, mackerel, and butterfish fishery.

In August 2012 the Council initiated Amendment 16 to the Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan to provide further protection to deep sea corals from fishing gear. The amendment will consider management measures to protect areas that are known or highly likely to contain deep-sea corals. Areas being considered for protection were initially identified during the development of the New England Fishery Management Council's Omnibus Essential Fish Habitat (EFH) Amendment. The draft amendment currently contains three groups of alternatives, including options for spatial designations of deep sea coral zones, options for management measures to be applied to such zones, and options for potential modifications to these management measures. In addition, a Memorandum of Understanding (MOU) was developed between the Mid-Atlantic, New England, and South Atlantic Fishery Management Councils regarding areas of jurisdiction and broad-scale coordination of management measures for deep sea corals.

Integration with Ecosystem-Approach to Fisheries Management

Since ecosystem based management involves the adoption of "place-based" management strategies, habitat science will play a key role in the Council's ecosystem based management program. The Council will continue to pursue traditional approaches to addressing habitat issues, including spatial/temporal mapping of habitat to inform the definition of ecological production units for management consideration. The Council has also endorsed the development of habitat assessments as part of the development of an overall assessment of the state of Mid-Atlantic ecosystems. In addition, the Council is pursuing the incorporation of regional habitat assessments into contemporary stock assessments, both at the single-species and ecosystem levels.

Habitat considerations will also be important throughout the anticipated future offshore wind energy development in the Mid-Atlantic, which is expected to overlap significantly with the region's fisheries. The Council has actively engaged with MARCO, the Mid-Atlantic Regional Planning Body, and BOEM, and has consistently supported the incorporation of fisheries resources, uses, and habitats in the offshore planning process. The Council anticipates that it will continue to play an active role on the issue of ensuring the future protection and health of fisheries habitat relative to offshore ocean planning.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARCO RUBIO TO RICHARD B. ROBINS

Question 1. As you know, it has become common practice for the Administration to divert in their annual budget the Saltonstall-Kennedy funds received by NOAA away from the authorized uses and into the agency's Operations and Research fund. Do you agree with this diversion or do you feel these funds should be used for their intended purposes and in addition to the funds appropriated by Congress to NOAA for fisheries research?

Answer. I am strongly supportive of the current objective of the Saltonstall-Kennedy Act, which is to address the needs of fishing communities in optimizing economic benefits within the context of rebuilding and maintaining sustainable fisheries and dealing with the impacts of conservation and management measures.

In the Mid-Atlantic region, the need for this program is evidenced by the large number of fishing communities struggling to regain stability well after stocks have been rebuilt and quotas have increased substantially. Successful, sustainable fisheries management under the current science-based requirements of the Magnuson-Stevens Act depends on having adequate surveys and stock assessments. The S-K Program can effectively address these types of challenges by involving stakeholders in fisheries research and development projects. In addition to enabling stakeholders to make valuable scientific contributions to fisheries management, S-K funded projects also have potential to strengthen relationships between the industry, scientists, and managers.

Unfortunately, a large portion of S-K funds have not been dispersed for their intended purpose, and despite several amendments to the S-K Act, the program has not achieved its potential. While I am not in a position to speak to the utility of the specific operational and research activities being funded at NOAA with S-K funds, diverting money from S-K to fund NOAA operations lacks transparency and may prevent the S-K Program from providing support to the communities that need it the most. Steps should be taken to increase accountability and ensure that S-K funds are used for their intended purpose.

In addition to addressing administrative issues within the S-K Program, I also recommend that Congress consider designating a portion of the S-K funds for the Regional Fishery Management Councils to direct towards cooperative research projects to address the Councils' research priorities. In the Mid-Atlantic region, the Northeast Assessment and Monitoring Program (NEAMAP) would be an ideal candidate for long-term S-K funding. NEAMAP is a fishery independent trawl survey designed to provide information on abundance and distribution of fish stocks in the inshore waters of the Mid-Atlantic not covered by the NEFSC trawl survey program. The information from this survey has already been incorporated into several stock assessment analyses and has become a core component of our fisheries monitoring programs in the Northeast region.

The NEAMAP survey is unique within the Mid-Atlantic because it is conducted on a commercial fishing vessel operated by a commercial fishing captain and crew. The onboard team of scientists from the Virginia Institute of Marine Science (VIMS) monitor and collect the survey data. This example of collaborative survey work enjoys an exceptionally high degree of confidence from the fishing industry and should be used as a model for cooperative research throughout the entire Northeast region of the U.S. Unfortunately, funding has been a major constraint for NEAMAP. For the six years since NEAMAP was established, the Council's Research Set-Aside (RSA) program has been the program's sole source of funding. The Council established the RSA program in 2002 to fund research projects cooperatively with the fishing industry which directly address the science needs identified within the Councils' five year research plan. The Council's commitment to funding NEAMAP has prevented us from funding other, potentially valuable, research projects.

In order to ensure the continued operation of NEAMAP, and to enable the Council to continue funding other research projects, I strongly encourage members of Congress to consider either (a) amending the S-K Act to designate a portion of funds for long-term research projects with proven potential, or (b) amending the Magnuson-Stevens Act to establish guaranteed funding sources for long-term collaborative and cooperative research projects.

Question 2. Would you please elaborate on the Council's harvest control rule and associated risk policy? What is the benefit of harmonizing this policy across all federally managed fisheries under the jurisdiction of the Council?

Answer. In 2012, the Council adopted a formalized harvest control rule and associated risk policy to guide the specification of Acceptable Biological Catch (ABC) limits for Mid-Atlantic stocks. The MAFMC regards its risk policy as way to specify the Council's tolerance for overfishing. The determination of P^* is a policy decision to be made by the Council and informed by the SSC. The SSC applies the Council's risk policy and associated harvest control rules when making ABC recommendations to the Council.

The risk policy and associated harvest control rules are expressed in terms of P^* , which represents the probability of overfishing as a function of stock health in relation to relative biomass (*i.e.*, current biomass/biomass target) (reference Figure 1.) The policy enables the Council to set quotas at higher levels of risk when stocks are at or above their biomass targets and progressively limits risk as stocks decline below their biomass targets.

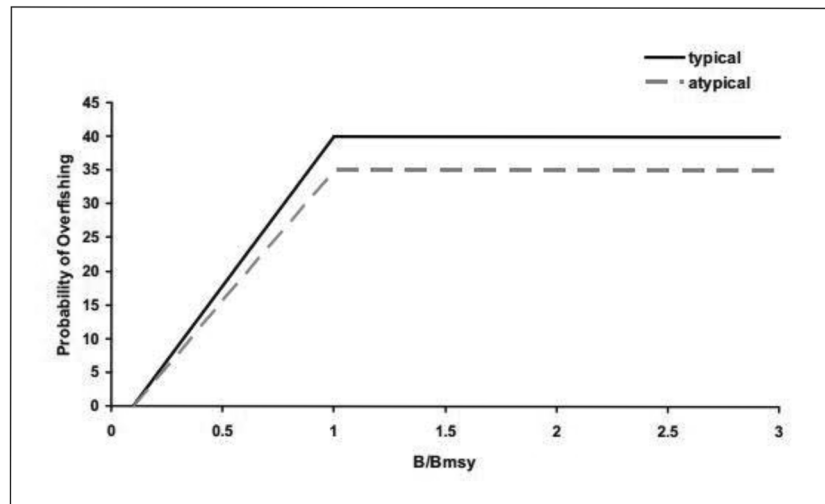


Figure 1. MAFMC Risk Policy and Harvest Control Rule

Implementation of the risk policy and harvest control rule is a two-step process. First the SSC assigns each stock assessment to one of four levels. The stock assessment levels are summarized as follows:

Level 1—“Ideal assessment”: ABC is based on the distribution of the OFL as provided from the assessment model; P^* is based on the Council’s risk policy.

Level 2—“Preferred assessment”: uses an OFL distribution proxy provided from the assessment workgroup; P^* is based on the Council’s risk policy.

Level 3—“Acceptable assessment”: does not reliably incorporate scientific uncertainty; uses an OFL distribution proxy (with a proxy CV), P^* is based on the Council’s risk policy or a default value of 75 percent of FMSY to set ABC.

Level 4—“Unreliable assessment”: lacks data on absolute abundance and fishing mortality rates; no reliable OFL proxy available; ABC set based on ad hoc, alternative approaches (e.g., adjustment to long-term catch history or survey index values).

In Levels 1 through 3, the SSC applies the Council’s P^* (risk policy/harvest control rule) to the distribution of the overfishing limit (OFL) to identify the acceptable biological catch (ABC.) This process works well for assessments that have biological reference points. The policy strikes an effective balance between maximizing yields in fisheries while accounting for the uncertainty that is inherent in fisheries stock assessments. For example, in Level 3 stocks that are at or above their biomass targets, quotas are set at 81 percent of the overfishing limit.

The levels are designed to incentivize improvements in data quality and stock assessments. The distribution in a level 3 stock is typically based on a lognormal distribution of the OFL, using a coefficient of variation (CV) of 100 percent. This results in a relatively wide distribution of the OFL value, whereas a Level 1 stock assessment would be expected to have a tighter distribution of the OFL, resulting in a smaller buffer between OFL and ABC. All of the Council’s stocks are currently classified as Level 3 or Level 4 assessments.

In Levels 1 through 3, the ABC’s are derived directly from the Council’s P^* as it is applied to the stock assessment’s estimate of stock biomass. This results in a transparent, consistent, and predictable approach to accounting for risk and scientific uncertainty. By contrast, in Level 4 stocks, the ABC recommendations have been less consistent and have destabilized some fisheries.

Developing and implementing a risk policy has been a challenging process for the Council, but it has also yielded a number of positive outcomes. Most notably, the risk policy has enabled the Council to manage fisheries with greater consistency, which ultimately results in greater stability for fishing communities.

Having a clearly defined risk policy has also provided us with a better means of communicating our needs to the science center. The fact that we have no Level 1

or Level 2 stocks should be a clear indicator of our desire for better data. As part of our recently approved strategic plan, we intend to begin working with the science center in 2014 to develop a path for improving Mid-Atlantic stock assessments.

Question 3. Should all fisheries managed under the Magnuson-Stevens Act be considered sustainable fisheries or should a third-party certification be required for a fishery to be deemed “sustainable?”

Answer. Yes—all fish and shellfish harvested legally from U.S. fisheries managed under the MSA should be considered sustainable. The Magnuson-Stevens Act is touted as one of the most effective fishery management laws in the world. One of the greatest strengths of the law is that it establishes a common standard of sustainability which is applied consistently across all U.S. fisheries, and over the last 37 years, managers, scientists, and fishermen have worked tirelessly to bring all U.S. fisheries up to this high standard. Despite our success, the social and economic outcomes of rebuilding marine fisheries have not been entirely positive for our region’s fishing communities. Many members of the commercial fishing industry struggle to regain their footing in U.S. and international markets even as quotas increase. There is also a lingering and sometimes demoralizing sense that U.S. fisheries and fishermen are still negatively associated with overfishing, despite the high standards that they are already held to under the existing requirements of the MSA.

These problems deserve to be addressed—U.S. fishermen fishing under today’s Magnuson Act should be standing tall among their international peers. In a market transformed by globalization, the sustainability of U.S. fisheries needs to be affirmed, and U.S. fishermen and processors should be able to identify and label their products as fish that were harvested responsibly and sustainably under the gold standards of the Magnuson-Stevens Act.

A U.S. fisherman catching fish in a fishery managed under the MSA should not have to make a hefty investment in a third-party certification in order to sell his fish to U.S. consumers, much less to the vendors of the U.S. Park Service. Within the global market, there will always be a need and a role for third-party certifiers for sustainability and food safety, but within the U.S. this role should largely be filled by the MSA.

I would be very concerned about shouldering NMFS with an unfunded, complicated certification program. Rather, I think the focus should be kept simple and should give the agency the authority to confirm that fisheries subject to Federal management are sustainably managed, consistent with the legal requirements of the Magnuson-Stevens Act. This would allow fishermen and processors to label and market their product accordingly. Such a designation may or may not satisfy a European retail chain, but a public affirmation of the core strengths of the U.S. management would be an important step toward better marketing of U.S. fisheries products.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARK BEGICH TO
CAPTAIN NICK MUTO

Question 1. Mr. Muto, could you tell us how fishermen participating in electronic monitoring pilot programs have responded to the technology? How has it impacted their business and interactions with enforcement officers?

Answer. Local fishermen see value in electronic monitoring. It is a cost-effective, safe, and unbiased way to implement a comprehensive monitoring program.

Electronic monitoring offers significant cost-savings compared to human at-sea monitors in the event that the fleet is required to cover this cost. In past years, NOAA has identified money to fund existing observer coverage requirements, and they recently announced the availability of funds to cover the 2014 fishing year as well. This support is appreciated by commercial fishermen who, given the disastrous state of the fishery, would be unable to afford to pay for observers at an estimated cost of \$1,200 per day. However, NOAA’s ability to fund this program has been decided on an ad-hoc basis, and a lack of funds in the future could tie the fleet to the dock.

Electronic monitoring also addresses the liability and safety concerns associated with carrying a human observer on fishing vessels. Observers’ level of comfort and know-how on boats varies from person to person, and an inexperienced observer in rough weather is dangerous to himself as well as the captain and crew. This type of situation leaves the door open for inconsistent sampling and human error; conversely, cameras can be positioned in several locations on a boat to collect complete, unbiased catch information without interfering with fishing operations.

For these reasons, the fleet has always supported electronic monitoring. Several local fishermen participated in a pilot program with NOAA to advance this technology, but we are no closer to implementing electronic monitoring than we were when the program began a decade ago. This lack of progress has been frustrating for program participants and other local fishermen, but we are still hopeful that an electronic monitoring program will be put in place in the near future.

Question 2. How would electronic monitoring impact your bottom line in needing to balance the ledger?

Answer. This is a tough time to be a fisherman in New England. Groundfish stocks are at an all-time low and fishermen are struggling to keep their businesses afloat. Every penny counts. A requirement for the fleet to fund observer coverage at roughly \$1,200 per day could mean the difference between staying afloat and going under for many fishing businesses in New England.

Given the high cost of observer coverage and the uncertainty regarding the availability of government funds each year, it is important that we pursue an affordable solution that holds the fleet accountable. Electronic monitoring could be that solution—it would allow for the collection of comprehensive, unbiased data while dramatically decreasing costs. This would allow fishermen to fish profitably.

Question 3. Needless to say, New England fishermen have had at times strained relationships with enforcement, particularly in the wake of revelations of enforcement abuse. How do you think electronic monitoring could help repair these relationships?

Answer. We need effective enforcement. Otherwise, our regulations are useless. Comprehensive monitoring, catch accountability, and enforcement are all necessary parts of a management system that works to rebuild fish stocks and support profitable fisheries. Electronic monitoring wouldn't replace enforcement, but it would facilitate accountability and streamline what is currently an overcomplicated and slow-to-adapt system. This would result in improved relationships between fishermen and enforcement, which is in the best interest of the fishery.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARK BEGICH TO
CAPTAIN JOHN MCMURRAY

Question 1. How do the Magnuson-Stevens Act's conservation requirements, including the 10-year rebuilding timeline, annual catch limits, and accountability measures, benefit industry in the region? What is your perception of the Sustainable Fisheries Act?

Answer. As I made clear in my written and oral testimony, I believe the MSA's conservation requirements embodied in the 1996 SFA and solidified the 2006 reauthorization, have been, overall, beneficial to the fishing industry. The 10 year rebuilding timelines really did force the Mid Atlantic Council to bite the bullet, implement sometimes very restrictive measures despite political pressure to allow unsustainable fishing, and as a result, species like summer flounder have recovered to levels we haven't seen in decades. This is particularly beneficial to the recreational fishing industry. Because we use the least efficient gear and have the least range, we depend on such abundance. "If you build it, they will come". And so when reports of abundant stocks and good catches begin to get out there, people want in on the action. They book charter and party-boat trips. Or they fuel their boats, buy bait, tackle etc. This is not just perception, it is fact. As I mentioned in my testimony:

"In the Mid-Atlantic, according to the National Marine Fisheries Service, recreational fishermen caught some 2.7 million summer flounder in 1989. In 2011, after rebuilding, that number jumped to more than 21 million fish. That's a 700 percent increase! NOAA fisheries service's numbers show angler trips over the last decade along the Atlantic Coast up 41 percent from the 1980s. In the Mid-Atlantic alone, according to the fisheries service, by the mid 2000s, that has brought in an additional \$1.4 billion in economic activity and supported 18,660 jobs. On the commercial side, the success story is similar. Gross commercial revenues for summer flounder are up more than 60 percent since 2000, when the rebuilding plan was put in place. And, in total, all of the rebuilt fish stocks brought in, on average, \$585 million in gross commercial revenues every year from 2008–2010."

Question 2. What lessons have you taken from observing the rebuilding of fisheries like striped bass, bluefish, and summer flounder? What lessons can be taken from the mid-Atlantic region and translated for New England?

Answer. Striped bass is interesting as, when ASMFC finally clamped down and put the moratorium in place, there was a lot of debate on what the causes for such a decline were. Managers simply couldn't pinpoint them. Fishing mortality was really the only thing they could control, so that is what they controlled. . .and it worked! The stock did indeed come back. So the old but recurring argument from fishermen that we don't have enough data to determine the cause of the decline is a precarious one. Likewise, the argument that declines are due to environmental factors rather than fishing, so they should be able continue to fish hard on a declining stock, make little sense. The fact of the matter is that natural mortality, plus fishing mortality equals total mortality, and it's total mortality that matters. So if higher levels of natural mortality are occurring, it means that it is even more important to reduce fishing mortality not only because of its own impact on the stock, but to compensate for higher levels of natural mortality as well. Fishing mortality becomes a greater, not a lesser, problem given an increase in natural mortality. The recovery of striped bass, and the decision to take action in the face of uncertainty, illustrates this well.

Yet striped bass now remains ASMFC's only notable "success", even though the real success took place 18 years ago after things got so bad that they had to do something. Striped bass was recovered under a management plan that protected 95 percent of the spawning stock. Yet, the current outlook for striped bass is not good. There are very few serious striped bass anglers left who don't agree the striped bass population has declined precipitously. That view has been validated by the 2013 Benchmark stock assessment, which was just peer-reviewed. That assessment shows just such a decline since 2004, says that without any reduction in fishing mortality, overfishing is a virtual certainty in 2014, and notes there is an increased chance of an overfished stock by 2015/2016. The Commission initiated an action, but only after voting down, by a large margin, a motion to take immediate action for the 2014 season, to avoid overfishing. The point is that ASMFC tends to kick the can down the road. They rarely take immediate action to avert a crisis. Unconstrained by Federal law, it generally waits until stocks are on or beyond the threshold of disaster before action is taken.

In regards to the New England Council, Summer flounder, and the other fisheries managed by the Mid Atlantic Council, provide a good example of how the Mid Atlantic Council took the right approach to management. They set hard catch limits and enforced them, despite the political pressure brought by some narrow economic interests. The New England Fishery Management Council, on the other hand, relied on input controls such as trip limits, days at sea, etc. because that's what the fishermen wanted in order to avoid setting hard poundage limits/quotas, which likely would have meant less fishing. And so they never were able to effectively reduce harvest. Now truly painful measures are needed.

I think the point here is that we need to have a strong law that requires managers to make the hard but necessary decisions, set the required hard quotas despite the short term pain they will likely cause, and manage fisheries with the future of sustainable fishing communities in mind, instead of just dictating fisheries management in light of to narrow economic interests that want to harvest as many fish as they can now.

Improving Science-Based Management

Question 3. From your experience, how important is it that regional fishery management councils set annual catch limits based on the scientific advice of their Scientific and Statistical Committees?

Answer. I think that it's critical to have SSC's set Acceptable Biological Catch (ABC). Allowing scientists to make such a determination effectively takes the politics out of the decision-making process in the beginning, thereby ensuring we have an objective estimation, taking into account scientific uncertainty, of how many fish we can take out of a stock while allowing it to be healthy and flourish. Having been a manager for five years, I know that there is a tremendous amount of political pressure/pressure from constituents to allow fishing at unsustainable levels. History is pretty clear that when we gave Councils such leverage they failed to manager sustainability. We really need scientists making that initial determination.

Question 4. What is your perspective on the current level of investment in fisheries research? Where should additional investments be directed in order to improve fisheries management?

Answer. Everyone agrees we need better science, to reduce the scientific and management uncertainty and to give us better, real-time estimates of fish stocks so we can react appropriately. Where specifically investments to improve such science should go, I don't know. That would be a question for the NMFS Fisheries Science Center and the Council SSCs.

Question 5. Current funding levels result in individual assessments that are often separated by four or five years. The status of a number of Mid-Atlantic species cannot be determined because of outdated information. How critical is it we dedicate more resources for data collection and improved and more frequent stock assessments?

Answer. Hugely critical . . .

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. MARCO RUBIO TO
CAPTAIN JOHN McMURRAY

Question. Please elaborate on the need for statutory language requiring a periodic review of the allocation between sectors for federally managed fisheries.

Answer. Councils are generally loath to look at reallocation between sectors (*e.g.*, between recreational and commercial) as the dynamics of a fishery change. For example, more recreational participants, less commercial . . . or, such as in the case with scup in the Mid-Atlantic the economics of a fishery change. Currently, in the scup fishery there are times of the year where the price of scup is so low it doesn't pay to fish for them. Meanwhile, anglers and particularly charter/partyboats have to fish under increasingly small quotas. In such cases Councils should look at/do a full analysis of potential reallocation between sectors. In the case of scup that's precisely what we are doing, however in general, because such reallocation discussions are often contentious, the Councils tend to shy away from such discussions. Statutory language would require the councils to look at such allocations on regular basis (every 5 years of so) to make sure such allocations provide the greatest overall benefit to the Nation. My constituency, the recreational fishing community, has been asking for this for a very long time.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARK BEGICH TO
PATRICK PAQUETTE

Recreational Fisheries Management Under Magnuson-Stevens

Question 1. What are the biggest challenges to recreational fisheries management and can these challenges be addressed under the current Magnuson-Stevens Act?

Answer. Although recreational fisheries management poses several big challenges, these challenges can be met and addressed through the existing MSA requirements. The root of the management challenge lies in the simple fact that millions of people engage in recreational fishing every year, and access is generally open with some limited restrictions. The challenge is not only in managing behavior of independent anglers, but also in overcoming the difficult task of collecting real-time, accurate data in order to inform timely management decisions.

The 2006 MSA reauthorization established the Marine Recreational Information Program (MRIP) to improve recreational fisheries data collection. MRIP includes vast improvements over the previous system, though its implementation has been delayed and wrought with problems. Although there are major challenges with MRIP, especially the data it produces for management, we do not need to amend the MSA to solve the problem. Rather, we need a redoubled effort to fully implement and improve MRIP by expanding the types of data that can be incorporated into the system, improving data collection methodologies and ensuring that data is analyzed and incorporated into management decisions in a timely manner. The National Marine Fisheries Service (NMFS) must prioritize and ensure strong stakeholder engagement from the recreational fishing community for MRIP to be successful. In addition, Congress must ensure a robust and steady funding stream for recreational data collection, monitoring and stock assessment. The number of jobs and the both direct and indirect economic contribution of recreational angling demands this commitment to significant investment in data collection.

The health and viability of recreational fish populations, and the economies that depend on those resources, will not be sustainable over the long-term unless we adhere to science-based management. The MSA requires managers to end and prevent overfishing based on the best available science, including the establishment of annual catch limits and accountability measures. These science-based requirements provide the critical legal structure that is needed to maintain sustainable recreational fisheries, and should not be weakened as Congress considers reauthorization. However, as noted previously, getting more reliable and timely data on recreational fish populations is the key to making the system function smoothly and will encourage buy-in by stakeholders. As we look to the next reauthorization, we must build upon the existing requirements of the MSA and consider additional fac-

tors, such as by catch and forage fish protection that have historically been a lower priority for commercial fisheries, but can have major implications for not only recreational, but for commercial species populations as well. The best science demands a holistic look at the entire ecosystem and that is where a reauthorized MSA must focus.

Question 2. How do the Magnuson-Stevens Act's conservation requirements, including the 10-year rebuilding timeline, annual catch limits, and accountability measures, benefit businesses in the region, and can you give examples?

Answer. The MSA's conservation requirements are necessary to end and prevent overfishing, and history has shown that short-term economic interests will prevail if hard rebuilding deadlines, accountability measures and catch limits are not required by law. Business interests can, and will benefit as stocks recover and are managed at healthy levels. Look no further than NOAA's research that predicted that rebuilding all federally-managed stocks would result in an additional \$31 billion in sales activity and 500,000 new jobs. Businesses want certainty or at least predictability so they can plan for the future. Weakening the MSA requirements may yield short-term gains for a few individuals or fisheries, but it will only further destabilize coastal communities that will suffer when the resource is depleted and can only support limited and/or single species dependent economic activity. Improvements in fisheries science should translate into more certainty for Councils as they evaluate different management alternatives, and ultimately this will provide more certainty/predictability for businesses. Some examples follow:

- CAPT. JOHN MCMURRAY discusses summer flounder as a success in his testimony. "In the Mid-Atlantic, according to the National Marine Fisheries Service, recreational fishermen caught some 2.7 million summer flounder in 1989. In 2011, after rebuilding, that number jumped to more than 21 million fish."
- Recreational fishing related businesses spend the off-season making business decisions based on expected supply and demand. With an unstable or low abundance of fish available to catch and without regulations that allow for an expected catch of enough fish to justify cost and effort (whether for sport or harvest) the demand for bait, tackle, lodging and support services will also be low. This translates into less sales of rods, reels, hotel rooms, maintenance supplies and all manner of support services. The trickle out economic effect due to low abundance of fish or lack of predictability of their presence is significant. Only long-term stable & sustainable populations of fish coupled with regulations that allow for reasonable cost benefit considerations will allow recreational fishing business to maintain its contribution to both the local and national economy.
- In most cases individuals plan fishing trips based on allotted time for recreational activities. The choice to go recreational fishing is based on cost benefit. Inconsistent availability whether that is by presence of fish in specific locations or availability/opportunity by regulation frequently dictates an anglers decision to fish or not, and this translates into the decision to spend or not. A recent history of low abundance (prior lack of actual fish to catch) coupled with regulations that allow for only a small amount of fish allowed to catch put potential anglers in the position of choosing to not go fishing and spending. Long term abundance of fish stocks means more stable stocks which effects predictability and regulation and translates into spending which supports the many businesses that rely on recreational fishing.

Question 3. What steps should NMFS take to enhance recreational fisheries data and management? Specifically, what are the biggest challenges to ensure recreational fishery data is collected, analyzed, and incorporated into management in a timely fashion?

Answer. See answer to Sen. Begich *Question 1*.

- In addition to my comments above, I suggest the current NMFS regime may be stuck in a "this is how we do it" mentality. The tackle industry uses advanced methods to predict how many rods, reels, line, lures etc. to manufacture. A key part of this manufacturing process is to predict effort, which ultimately is tied to the health of target species. Many millions of dollars are on the line for the industry and I suggest that if the tackle manufacturers can make determinations on effort that have real world monetary consequences, NMFS should be able to use similar methodologies to manage recreational fisheries. If adequately funded and directed via and reauthorized MSA, NMFS should be able to use more modern technology to obtain better data that can be used to better manage the economic engine that is recreational fishing.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. RICHARD BLUMENTHAL TO
PATRICK PAQUETTE

Question 1. Recent actions by the Mid-Atlantic and New England Fishery Management Councils have made progress towards protecting forage fish. How is the protection of forage fish vital to the recovery of fish populations like bluefish, and how does it ensure the health of the fishing industry? What more should be done?

Answer. Forage fish play a critical role as prey for valuable fish stocks and in turn increase the availability of targeted predator species. This is particularly important for recreational species, including bluefish or striped bass that rely on forage fish as a primary source of food. We can never expect to rebuild and achieve healthy sustainable fisheries, and fishing communities, unless adequate protection measures are in place to prevent the decline in forage species. This is ecosystem based fishery management at a basic easily understood by all fishers of all sectors.

Under the existing authority of the MSA, some Councils are moving forward in developing policies to improve the management of forage fish. For example, in June 2012, the New England Fishery Management Council (NEFMC) approved Amendment 5 which included important new measures to protect river herring, a key forage species for both striped bass and bluefish, through increased monitoring and limits on by catch. Unfortunately, despite Council efforts to work with the National Marine Fisheries Service (NMFS) on implementation and overwhelming public support, on July 18th, NMFS rejected several of these measures, including requirements for 100 percent observer coverage on trawlers and limits on slippage caps. NMFS should not be a roadblock to proactive management measures for forage fish, and Congress should institute a legal requirement to require that plans are in place to protect the role of forage species. Once again this type of requirement is an easy to understand step toward (EBFM) where all sides agree we need to go with the science of fishery management.

A reauthorized Magnuson-Stevens Act should recognize the importance of forage species by requiring that ecosystem functions be included in scientific assessments and fishery management plans. The critical ecological role of forage fish and the needs of predators should also be accounted for when catch limits are set. One specific way Congress can make these ecosystem safeguards a reality, and consistent across the country, through the next MSA reauthorization would be by requiring that broader fishery ecosystem plans be developed and integrated into all individual fishery management plans. Congress should ensure that such plans are in place prior to the development or expansion of any fishery for forage species.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. EDWARD MARKEY TO
PATRICK PAQUETTE

Improving Recreational Fishing Data And Management

Question 1. What steps should NMFS take to enhance recreational fisheries data and management? Specifically, what are the biggest challenges to ensure recreational fishery data is collected, analyzed, and incorporated into management in a timely fashion?

Answer. See answer to Sen. Begich *Question 1*.

Climate Impacts on Fisheries

Question 2. The President's Budget request for Fiscal Year 2014 includes a \$10 million increase for NOAA to fund research on the impacts of climate on fisheries with a focus on Northeast groundfish. Do you think it is necessary to have some dedicated funding for research to understand the impact of climate change on fish stocks and that this research could help improve stock assessments and ultimately benefit fishermen?

Answer. Yes. Over the past fifty years, average water temperatures around New England have risen between two and four degrees Fahrenheit, and fishermen are witnessing firsthand the impacts on fish populations. Species including cod, black sea bass, scup, and others appear to be moving north in search of cooler water temperatures, and these changes in the ocean also have potential to impact distribution and availability of prey. More research is needed to determine how climate change is impacting fish stocks and that information should be incorporated into stock assessments. Such data and analysis would serve as an important step toward accounting for ecosystem considerations in our fisheries and optimizing management for the long term. As fish move to cooler and deeper waters, new opportunities to catch fish not historically found in New England & Mid Atlantic waters may arise. It is important to assess populations, then consider and establish management

measures before fisheries are allowed to commence so we avoid creating management problems we will have to address later.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. MARCO RUBIO TO
PATRICK PAQUETTE

Question. Would you please elaborate on your idea regarding “a more equitable distribution of stakeholders on councils?”

Answer. Section 302(b)(2)(B) of the Magnuson-Stevens Fishery Conservation and Management Act requires the Secretary of Commerce (Secretary) to report annually to Congress on the achievement, to the extent practicable, of a “fair and balanced apportionment, on a rotating or other basis, of the active participants (or their representatives) in the commercial and recreational fisheries under the jurisdiction of [each Regional Fishery Management].

According to NOAA’s own data contained within the publication “Fisheries of the United States 2011”; Commercial fisherman in New England harvested 353.4 million pounds of finfish in 2011 compared to 23.9 million pounds of fish caught by recreational anglers. Commercial landings of species that matched those of anglers were worth \$182.8 million. Including multiplier effects, this revenue generated \$720.8 million in sales, \$258.4 million in income, \$360.3 million in value added (GDP), and supported over 16,608 jobs.

Anglers spent over \$1.1 billion in 2011. Including multiplier effects, these purchases resulted in \$1.2 billion in sales, \$388.3 million in income, \$602 million in value added (GDP) and supported 8,723 jobs.

Although the Mid Atlantic council has achieved a fair and balanced apportionment the New England Council has for many years failed to meet any standard of fair and balance apportionment as “suggested” in MSA.

The 2012 NMFS Report to congress detailed apportionment on all regional councils. That document showed the following for the New England Fishery Management Council:

Year	Commercial	Recreational	“other”	Total
2010	7	3	2	12
2011	8	3	1	12
2012	7	3	2	12

(In addition many in the recreational sector have openly questioned one of the seats reported as recreational as not being a recreational representative and should be included in the “other” category. To support this claim I offer the following: In 2012 the NMFS North East Regional Office co hosted (w/the Rhode Island Salt Water Anglers Assn.) a Southern New England Recreational Fishing Symposium in RI. Only two members of the NEFMC were invited because only two members are viewed as recreational. The member I am referring to holds a seat in RI but was not invited because in general and with no disrespect intended that member is not considered a recreational member of the NEFMC.

To make matters worse, in 2013 one of the two members commonly recognized as being from the recreational sector reached term limit and the 2013 appointee was a former life long NMFS retired employee. There are now only two reported and I suggest the reality is that there is currently only ONE recreational member out of the 12 seats on the New England Council.

No matter how the number of recreational members is viewed, the harvest and economic statistics above dictate that the New England Council has been and continues to be outside what can be considered a “fair and balanced apportionment”.

Simply put, I suggest that a reauthorized MSA should have stronger language that sets a standard and further defines “fair and balanced apportionment” of representation.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARK BEGICH TO
DR. JOHN BOREMAN

Science-Based Management Under Magnuson-Stevens

Question 1. Why do you support the expansion of industry-based surveys for stock assessments? How would this improve scientific uncertainty and assist sound fishery management?

Answer. The fishery-independent surveys conducted by NOAA survey vessels are valuable sources of data for many of our Nation’s stock assessments, but certainly

not all. Because of the relatively few vessels involved, NOAA vessel surveys are limited both spatially and temporally, and also by the sampling gear they deploy. We have found in the mid-Atlantic region that some of the species managed by the Mid-Atlantic Fishery Council (MAFMC) may not be adequately sampled by the NOAA bottom trawl survey, thus leading to a higher than usual level of uncertainty in the survey data. The Scientific and Statistical Committee (SSC) believes some of the managed species, such as the squids, spiny dogfish, and Atlantic mackerel, venture much further out to sea than the offshore limit of the NOAA survey. The ability of the NOAA vessel survey to capture other species, such as scup, is dependent on the timing of the survey versus the timing of the stock's movement patterns. These factors may be the reason we see higher year-to-year variability (and thus higher uncertainty) in the stock biomass indices generated by the NOAA vessel surveys for these species.

Use of industry (commercial and recreational) fishing vessels to supplement and complement the NOAA vessel surveys allows sampling of a much broader expanse of the ocean, and sampling more intensively in areas of high concentrations of stock biomass where the NOAA survey vessels are incapable of covering because of timing, depth and gear limitations, and other factors. If the industry-based surveys are conducted in a statistically-robust fashion, the additional data gathered by these surveys will help reduce the variance in estimates of stock biomass and recruitment (which is directly related to the number of representative samples taken), as well as help test for potential bias in the sampling being conducted by the NOAA survey vessels by providing alternative insights into stock dynamics.

A limited number of industry-based surveys are already helping to reduce the scientific uncertainty in stock assessments. For example, the inshore Northeast Area Monitoring and Assessment Program (NEAMAP) survey, conducted by a commercial fishing vessel in collaboration with the Virginia Institute of Marine Science, is already reducing the degree of scientific uncertainty in stock biomass and recruitment estimates for species such as summer flounder. An industry-based trap survey, conducted in collaboration with the University of Rhode Island, is helping to reduce the uncertainty in estimates of the abundance of scup in the New England and Mid-Atlantic regions.

Question 2. How have the 2006 amendments to Magnuson-Stevens, such as scientifically based decision making and the establishment of annual catch limits, improved fisheries management in the U.S.? And to what degree do you believe that inaccurate science and resulting catch limits contributed to the New England fishery disaster?

Answer. From a science perspective, the most significant aspect of the 2006 amendments to the Magnuson-Stevens Act (MSA) is the recognition that we cannot wait for achievement of 100 percent certainty before using scientific advice for managing our nations fisheries. Fisheries science can never be 100 percent accurate, especially when sampling is conducted in an environment where we cannot easily ascertain the presence and movement of targeted species. Recall the lyrics from a 1970s song: "The ocean is a desert with its life underground and a perfect disguise above." For most of my career my experience with marine fisheries management has been one of frustration. The frustration grew out of the tendency of fisheries managers to push catch limits to the edge, willing to take the risk that 50 percent of the time (or even more in some cases) they were instituting management measures that would lead to overfishing and slow the recovery of overfished stocks. Now, with the requirement added in 2006 that annual catch limits cannot exceed acceptable biological catch levels set by their SSCs, Councils have become more risk-averse in their management actions.

In reference of the New England fisheries, as well as fisheries in all the Nation's regions, inaccurate science can lead to unintended mismanagement. However, the requirement now contained in the National Standard 1 Guidelines that a buffer between the overfishing limit and the acceptable biological catch (ABC) level be established that is directly proportional to the degree of scientific uncertainty about a stock's dynamics greatly reduces the chance of that happening.

Inaccuracy and imprecision of scientific information are just two factors that can lead to unintended mismanagement. There is also the uncertainty associated with implementation of management measures, termed management uncertainty, which could be an even greater factor than scientific inaccuracy and imprecision in causing unintended mismanagement. When fishing regulations are established through the management process to limit catch levels or fishing mortality rates, a level of uncertainty exists between what the regulations are intended to do and what they actually cause to happen. Our experience in the mid-Atlantic region has been that management measures to limit marine recreational catch of some species, like scup and black sea bass, have been much less successful than management measures em-

ployed on the commercial side. In some cases, recreational catch limits have been exceeded by more than 100 percent in a given fishing year. The existence of management uncertainty has been recognized by all the SSCs, and many have supported management strategy evaluations to assist them in providing advice to the Councils on how to minimize it.

In summary, the fishery situation in New England has likely been caused by incomplete understanding of the dynamics of the fisheries stocks (and the relationship between those population-level dynamics and the dynamics of the ecosystems within which they reside), and the inability of management measures to totally control how the fisheries operate.

Question 3. A recent study by NOAA scientists found that Atlantic cod recovery may be hindered by a decline in their food supply. How can fisheries management better incorporate considerations of the broader ocean environment, including climate change conditions and complex food webs?

Answer. Incorporating ecosystem considerations into ABC determinations was a principal focus of the most recent National SSC Workshop, hosted by the MAFMC. One of the conclusions of that workshop was that a national investment in ecosystem modeling and a management strategy evaluation of approaches used for ecosystem-based fisheries management is warranted. Modeling can provide a cost-effective means of exploring the structure, function, and variability (scientific uncertainty) of ecosystems and the expected range of responses of those systems to natural and human-induced perturbations.¹

Unlike modeling of fisheries stocks, which has a foundation well steeped in theory that has evolved over the past 80 years, theory supporting ecosystem-level modeling is still in the early stages of development. Although not widespread at the moment, ecosystem conditions and their impacts on stock dynamics are starting to be incorporated into stock assessments—more so on the West Coast. Fisheries scientists are using the relationship between oceanographic conditions and the distribution of fishery stocks to develop better estimates of stock biomass based on survey data. Uncertainty is also being reduced in estimates of natural mortality rates that are used in stock assessments by using food habits data to refine estimates of predation loss. With a better understanding of the effects of temperature on the distribution of fishery stocks, their predators, and their prey, and how changes in those distribution patterns can affect predation-prey interactions and thus fishery stock dynamics, scientists will be better able to understand the anticipated effects on climate change on our Nation's fisheries and the economies they support. We are not there yet, but we are certainly moving in the right direction.

Question 4. Frequent stock assessments are necessary to make accurate annual catch limits, however, they are also costly and complex. How many stock assessments are too many? And how should we prioritize species for stock assessments?

Answer. Fisheries scientists currently use two forms of stock assessments in the Mid-Atlantic and New England regions. A *benchmark assessment* is one that incorporates new methodologies and new data sets that require independent scientific review prior to their use. *Assessment updates* use the same methodology or methodologies and data sets that have passed independent peer review in benchmark assessments, and simply add the most recent data to the time series—often referred to as “turn-of-the-crank.” Peer review of assessment updates is not as rigorous as it is for benchmark assessments, nor does it need to be, and the time period and level of personnel resources needed to complete updates are much less. However, even assessment updates can divert attention away from competing priorities for assessment scientists, and are getting more and more difficult to undertake on an annual basis for our managed species. To address the problem of competing demands for stock assessments, the MAFMC SSC is currently in the process of developing a “rumble strip” approach to monitoring stock trends by using only a few key and easy-to-obtain measurements to determine if stock characteristics are staying within acceptable bounds. This approach will require even less effort than assessment updates, and will allow assessment scientists to devote more time to developing new methodologies and data sets for benchmark assessments.

Priority for conducting a benchmark assessment should be based on the following factors for the stock in question: (1) the likelihood that a new methodology or alternative data sets will better represent the dynamics of the stock; (2) the amount of time that has elapsed since the last benchmark assessment, relative to the mean

¹Seagraves, R., and K. Collins (editors). 2012. Fourth National Meeting of the Regional Fishery Management Councils' Scientific and Statistical Committees. Report of a National SSC Workshop on Scientific Advice on Ecosystem and Social Science Considerations in U.S. Federal Fishery Management. Mid-Atlantic Fishery Management Council, Williamsburg, VA. 94 pp.

generation time for the species (species with shorter generation times have the potential for greater change from year-to-year in their population dynamics); (3) indications that trends in the stock are not following projections based on the benchmark assessment, suggesting the wrong methodology is being used or the representativeness of the data sets needs to be re-examined; and (4) the status of the stock—stocks that are overfished or still being rebuilt should take priority over stocks that are at sustainable levels.

Question 5. Rebuilding timelines have been called arbitrary by some, but don't they have some basis in science? How important are the established rebuilding timelines for fishery management? Why are these timelines important for sustainable management?

Answer. Rebuilding timelines are important in that they hold fishery managers accountable for restoring fishery stocks to sustainable levels. Contrary to what some scientists claim, the rebuilding timeline of 10 years that was established by the Sustainable Fisheries Act of 1996 is based on science. The timeline is based on the recognition that mean generation times for many of our managed fish and shellfish range from three to five years (the MSA already provides an exemption for long-lived species that may not have sufficient time to replenish the spawning stock during a 10-year span). To make the 10-year timeline more workable, the rebuilding clock should start when the rebuilding regulations begin to be implemented, not immediately when the Secretary of Commerce approves the rebuilding plan.

What the established rebuilding timelines fail to take into account, however, is the ability of the fishing industry and their supported economies to re-adjust their capacity to a timeline based on biology, and do it immediately upon implementation of the rebuilding plan. If properly constructed, stock-rebuilding plans should allow for gradual rebalancing of fishing effort to match the ability of a fishery stock to sustain exploitation once the stock is rebuilt. As long as stock rebuilding continues along an upward trajectory and is closely monitored, the rebuilding timeline should be set to take into account not only the biology of the target species, but also the anticipated economic and social impacts of stock rebuilding on the commercial and non-commercial fishing industries, markets, and fishing-dependent communities.

Question 6. Since the 2006 amendments to Magnuson-Stevens Act, how have the conservation requirements to follow scientific advice, establish annual catch limits and accountability measures, and end overfishing improved fisheries management in the U.S.?

Answer. Since 2006 fisheries management in the U.S. has become more science-based. Managers now have a more formal and consistent way in which to apply scientific advice in establishing annual catch limits, and must now specify beforehand how much risk of overfishing they are willing to assume when they set those limits. The scientific advice, in the form of ABC recommendations, is required to have more explicit supporting documentation, especially when established control rules cannot be followed due to lack of data or an unacceptable stock assessment. The process created by the 2006 amendments of establishing overfishing limits, acceptable biological catch levels, annual catch limits, and accountability measures ensures that the best available science plays an integral role in fisheries management decisions.

Question 7. What more should we be doing to consider the broader ocean environment in fisheries management?

Answer. Expanding the use of oceans for renewable energy and aquaculture, along with increasing pressure on the marine environment brought about by human population growth and climate change, are prominent challenges to conservation of habitats within marine ecosystems that support production of marine fisheries resources.

When we conducted our National SSC Workshop on ecosystem considerations (referenced in the answer to question #3), it became obvious that each fishery management council is striking out on their own path in ecosystem-based fisheries management. One example of the problems this causes is the lack of a uniform definition of forage species across the councils, which serve as the building blocks of marine food webs, and how forage species are being treated in setting ABC recommendations by the SSCs. Furthermore, there is a tenuous link between habitat conservation, addressed by the essential fish habitat (EFH) provisions of the MSA, and ecosystem-based fisheries management (EBFM). The MSA encourages the regional fishery management councils to pursue EBFM, but the direction given in the MSA offers no clear guidance as to how changes to local habitats supporting fisheries resources are to be considered in the broader ecosystem context. Finally, the MSA does not offer guidance for integrating habitat conservation into coastal and marine spatial planning (CMSP), essentially leaving it up to the individual fishery manage-

ment councils to figure out how to get the habitat conservation (EFH) foot into the slowly-opening CMSP door.

NOAA Fisheries should be encouraged to develop national guidelines for plans addressing EBFM that ensure adherence to the national standards contained in the MSA. The guidelines should also contain definitions of terms, such as forage species, and provide means to link protection of EFH to broader marine ecosystem effects.

Currently, the MSA requires that fishery management plans developed by the regional councils, and ultimately approved by the Secretary of Commerce, must adhere to ten national standards. To strengthen the habitat conservation requirements of the MSA, Congress should consider adding a new, eleventh national standard:

Minimize adverse impacts on essential fish habitat to the extent practicable.

The implications of this proposed addition are far-reaching. Depending on how the associated guidelines are written, it could give the Secretary of Commerce regulatory authority (*i.e.*, veto power) over federally licensed or permitted projects that may adversely affect EFH. This veto power would be akin to the veto power currently held by the Administrator of the Environmental Protection Agency over Federal projects that could adversely affect water or air quality. The guidelines could also require identification and monitoring of activities that could potentially negatively impact EFH (or positively, for that matter). Finally, NOAA Fisheries and the regional councils would be able to move from their current consultative role to a role that is more active and cooperative, perhaps even pre-emptive, as they work in closer cooperation with other regulatory agencies.

Is establishment of such a national standard for habitat conservation justified? Absolutely. Once approved by the Secretary of Commerce, fishery management plans, plan amendments, and framework actions, are considered public policy. My experience has been that public policy carries a lot of weight in federally approved actions and associated judicial rulings. Furthermore, rebuilding fishery stocks and maintaining them at sustainable levels involves much more than addressing overfishing; habitats must be capable of supporting the renewed production of fishery stocks, especially if those stocks are at or near their historically highest levels of abundance.

Finally, strengthening the habitat conservation provisions of the Act would provide a greater guarantee that objectives of fishery management plans can actually be achieved. Establishing a national standard for habitat conservation would elevate the importance of identifying EFH, focus habitat-related research and monitoring, facilitate operational improvements to the Federal process involved with habitat conservation, including closer coordination between and among regulatory and resource conservation agencies, and help the regional councils refine their habitat conservation objectives for fisheries management. Also, the new national standard would give the Department of Commerce more clout in reviewing offshore projects that are federally licensed or permitted. A habitat conservation national standard would facilitate integrating habitat-level assessments into EBFM and, on a broader scale, further facilitate CMSP by having a clear set of objectives that help define essential ecosystem services in support of fisheries management.

On the negative side, adding a new national standard would very likely increase the probability of litigation, as managers try to address (and balance) the new standard with the ten existing ones. Furthermore, following the guidelines that will be established for the new standard may lead to additional delays in approvals of fishery management plans and plan amendments. Finally, a stronger and broader base of scientific support will also be required, which may be difficult in the current era of shrinking budgets for state and Federal agencies.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. EDWARD MARKEY TO
DR. JOHN BOREMAN

Constraints on Cooperative Research

Question. In your written testimony, you say that there are constraints in the cooperative research grants process that hinders collaboration between NOAA fisheries scientists and fishermen at the early stages of program development. Can you provide the specifics of those constraints and suggestions of how they might be changed to improve collaboration?

Answer. Major constraints affecting collaboration among the fishing industry, academia, and state and Federal resource agencies in the conduct of cooperative research are: (1) the inability, and in some cases unwillingness, of the parties to work closely together during the early stages of project development so that data collec-

tion and analysis are undertaken in a statistically robust and scientifically defensible manner; and (2) the current project-by-project and year-to-year approaches to funding cooperative research at the Federal level cause surveys to be piecemeal and not comprehensive in nature, and force investigators to re-apply for funding each year.

To overcome these constraints, region-based and theme-specific cooperative agreements for surveys and cooperative data collection should be established and funded with multi-year appropriations. A model for this type of agreement is the Industry & University Cooperative Research Program (I/UCRC) of the National Science Foundation (NSF). The I/UCRC program was established to bring participants from industry, government, and other organizations in need of science-based solutions into contact with academic scientists capable of providing that expertise under an organizational structure that permits active participation in the science agenda in exchange for participant financial support. An I/UCRC program was recently instituted through the University of Southern Mississippi and the Virginia Institute of Marine Science to address urgent scientific problems limiting sustainable fisheries in the Mid-Atlantic region. Another model is the theme-based NOAA Cooperative Institute Program, which has a five-year funding authorization, and which promotes direct participation by multiple universities and industry participation in an advisory capacity.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. MARCO RUBIO TO
DR. JOHN BOREMAN

Question. What specific policy changes would you recommend to achieve an adequate expansion of industry-based cooperative research surveys and cooperative data collection programs in all fisheries in the United States?

Answer. Current policy, as expressed through the Magnuson-Stevens Act, should be changed from one that encourages *cooperation* between industry and government agencies in the conduct of research on topics of mutual interest to one that promotes *working partnerships* on a much broader scale. Although the Magnuson-Stevens Act contains a number of provisions that promote cooperative surveys and data collection projects, major constraints still exist that inhibit effective collaboration among the fishing industry, academia, and state and Federal resource agencies in the conduct of cooperative research. These constraints are: (1) the inability, and in some cases unwillingness, of the parties to work closely together during the early stages of project development so that data collection and analysis are undertaken in a statistically robust and scientifically defensible manner; and (2) the current project-by-project and year-to-year approaches to funding cooperative research at the Federal level that cause surveys and research projects to be piecemeal and limited in scope, forcing cooperative researchers to re-apply for funding each year by using the often cumbersome and protracted government grants process.

To overcome these constraints, *region-based and theme-specific partnerships for surveys and data collection should be established and funded with multi-year appropriations*. One model for this type of partnership is the Industry & University Cooperative Research Program (I/UCRC) of the National Science Foundation (NSF). The I/UCRC program was established to bring participants from industry, government, and other organizations in need of science-based solutions into contact with academic scientists capable of providing that expertise under an organizational structure that permits active participation in the science agenda in exchange for participant financial support. An I/UCRC program was recently instituted through the University of Southern Mississippi and the Virginia Institute of Marine Science (Science Center for Marine Fisheries, www.scmfis.org) to address urgent scientific problems limiting sustainable fisheries in the Mid-Atlantic region.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARK BEGICH TO
DR. JOSHUA B. WIERSMA

Magnuson-Stevens Act Flexibility

Question 1. In your testimony, you advocate for additional flexibility in rebuilding timelines to end overfishing through a gradual “step down” approach. The Magnuson-Stevens Act currently states that a time period for rebuilding the fishery shall “not exceed 10 years, except in cases where the biology of the stock of fish, other environmental conditions, or management measures under an international agreement in which the United States participates dictate otherwise.” How has this flexi-

bility to set rebuilding periods that are longer than 10 years been used in developing rebuilding plans for fish stocks in the Northeast?”

Answer. Samuel Rauch III, Acting Assistant Administrator for the National Marine Fisheries Service, did a thorough job answering this question in his testimony before the Committee of Natural Resources of the United States House of Representatives at the hearings about the Magnuson-Stevens Act on September 11, 2013.¹ The following information was provided as part of his testimony, but I reference you to his full testimony for more detailed information than what is provided below.

“Specific Current rebuilding time periods for stocks with active rebuilding plans range from four years to more than 100 years. Of the 43 active rebuilding plans with a target time to rebuild, 23 of them (53 percent) are set longer than 10 years due to the biology of the stock (slow reproducing, long lived species) or environmental conditions. For example, Pacific yellow eye rockfish has a rebuilding timeline of 71 years. The remaining 20 rebuilding plans are set for 10 years or less. Of the 33 stocks rebuilt since 2000, 18 stocks were rebuilt within 10 years. Two additional stocks in 10-year plans were rebuilt within 12 years.”

Yes, rebuilding plans can be longer than ten years. That’s not the problem. The problem arises when the dynamic conditions that dictate rebuilding change after the plan is in place. What is lacking is a dynamically responding rebuilding plan, so that when science methods change (*e.g.*, switching research vessels from the Albatross to the Bigelow 8 years into a rebuilding plan for Cod) or when dynamic environmental conditions (like global warming) create unpredicted and sometimes unprecedented shifts in the ecosystem—rebuilding plans can be flexible enough to account for these phenomena.

What I argued for is a step down approach to drastic cuts in ACL from year to year if dynamic conditions in the bio-economic ecosystem change after the plans are in place. A step down approach helps to hedge the risk that science is wrong, but more importantly, it helps to hedge the risk to fishermen and shore-side infrastructure from economic losses associated with wild swings in ACL—which is a mandate of National Standard 8.

Reducing Requirements on Over Fishing

Question 2. Over the past year, many New England fishermen have been unable to catch even half of their allotted quota of groundfish, suggesting that lack of fish, not overly-burdensome quota limits, has caused the economic hardship currently faced in New England fisheries. With this in mind, how do you propose that reducing requirements on overfishing would help ease the burden of the current fishery disaster?”

Answer. Quota limits may or may not be overly burdensome, but there needs to be a process for quota limit adjustment that is linked to dynamic changes in the bio-economic ecosystem. The bio-economic ecosystem would rebuild fish stocks at a rate that is both sustainable to the stock, but also to the fishermen and communities that rely on those stocks. When quota limits are set in a bio-economic ecosystem, they would consider how changes in the level of allowable catch on one stock affects fishermen’s ability to target other groundfish stocks caught in conjunction with that stock. If it is a significant economic burden to prosecute healthy stocks given the quota constraint placed on a less healthy stock, then the quota limit on the unhealthy stock should be raised to alleviate and balance some of the burden to fishermen and communities.

Fishermen fish a fish complex, which is comprised of a portfolio of species that have to be selectively managed and fished together. Under sector management, we must stop fishing for everything if we run out of our allocation of one stock. So science can no longer operate in a vacuum based on single stock assessments. Instead, it must look at the entire interactive fish ecosystem and develop some overall maximum biomass indicator level of health (rather than focusing solely on single species biomass maximization). A large reason why fishermen can’t fully prosecute their quota limits is because they are constrained by low quota limits on unhealthy stocks called “choke stocks” or by very high quota limits set on healthy stocks that affect the harvest rate of lower quota stocks, “limiting stocks”.

Choke stocks are non-target species that are caught jointly with target species that force fishermen to either stop fishing for their primary target species too early, or avoid targeting it all together. This phenomenon is problematic because fishermen lose money from the loss of opportunity to fish the healthy stocks. When quota limits are set too high on a stock, other stocks caught in conjunction with that stock become “limiting” because they are exhausted too quickly in conjunction with the

¹ www.commerce.gov/sites/default/files/documents/.../rauch091113.pdf

primary stock, and fishing effort is unevenly distributed throughout the year resulting in “pulse fishing” and wild fluctuations and unpredictability of market prices. Uneven distribution of fishing effort also results in greater competition from imported stocks as dealers prefer consistency and predictability of supply. Either way, poor science and inflexible quota limits result in inefficient portfolio harvest, loss in social welfare, and risks of losing domestic markets.

Therefore, quota limits need to be able to adapt and change based on information gathered each year about new science, about behavioral changes in fishing effort (e.g., spatial redistribution of effort, more or less use of fishing gear, changes in number, type and scale of fishing trips), and about abnormal and unexpected swings in quota prices. Not only can information about behavioral changes in fishing effort and changes in quota prices from year to year help predict losses in social welfare as a result of choke or limiting stocks; but it can also be used to predict and ground truth estimates of the biomass of the stock complex, and the expected change in stock abundance and distribution as a result of abnormal changes in environmental conditions.

Along with new scientific information about stock abundance and about global temperature changes, information about changes in fishing effort and quota prices from year to year can be used to set limits from year to year that are better able to direct fishing effort to more of a joint bio-economic equilibrium. To facilitate this, not only do rebuilding timelines need to be established based on new reference points incorporating localized temporal and spatial information about changes in water temperature—but they also need to be more flexible, even if it means extending a rebuilding timeline previously put in place. Ultimately, this means moving away from single stock biomass assessments to an ecosystem based indicator that incorporates dynamic changes in both environmental conditions and in fishing behavior and effort.

Abnormal Environmental Conditions

Question 3. Can you expand on these “abnormal” conditions and phenomena? How might these conditions relate to climatic changes taking place? How do you think these conditions are complicating the recovery of New England fish stocks?”

Answer. Researchers have shown that fish move in relation to temperature changes, and that long term trends of warming waters can have lasting impacts on the distribution and location of global fish stocks (for good examples, see Pinsky *et al.*, 2013; Fogarty *et al.*, 2008; Drinkwater 2005). What isn’t clear is how dynamic this change is (how fast it will occur), and what this change means for the long term yields from the fishery.

Pinsky *et al.*, talk about “climate velocity” to explain why as many as 60 percent of land and sea species have deviated from the expectation that rising global temperatures would drive animals toward cooler high latitudes and elevations, or deeper waters, the researchers report. Instead, animals follow local temperatures, which over the next few decades may warm or cool even as global temperatures overall are rising.

Ocean temperature changes depend on currents, changes in the atmosphere, and geological features on the shore and in the ocean. Species-preferable water temperatures have tended to move toward the poles, but not in a single wave. In some cases, local changes in water temperature move away from the poles, or to deeper waters. As a result, researchers found that 73 percent of species that moved south; and 75 percent of species that relocated to shallower waters were following discrete, localized water temperature changes.

This has implications for fisheries management. I believe that fisheries managers need to immediately adapt to this information and calculate a new set of reference points for the current warm water regime. It is widely documented that unfavorable environmental conditions reduce productivity, increase mortality, and result in a negative impact of cod biomass (Drinkwater 2005, Rothschild 2007, Fogarty *et al.*, 2008).

In fact, a full reassessment of biological reference points on all New England stocks should be done based on the expected re-distribution of fish as a result of expected local temperature changes—which are easier to predict than long term temperature changes. The new “warm water” reference points should then be used to calculate new “acceptable biological catch” (ABC) and new “annual catch limits” (ACLs)—with mechanisms in place to ensure flexibility and adaptability to dynamic water temperature changes and large changes in social welfare as a result of “choke stocks” or “limiting stocks”.

Investment In Collaborative Research

Question 4. Is our current investment in fisheries data and research sufficient to ensure sustainability, and if not, what are your recommendations for improvement? How can additional cooperative research successfully support fisheries management? How would making collaborative fishery management more industry-driven help to achieve better science-based decision making outcomes?”

Answer. The level of investment in collaborative research has been both inadequate and inconsistent. The inconsistency of funding is just as problematic as the overall level of funding. Fisheries science depends upon long term, time series information about the environment, about stock biology and abundance, and about the efficiency and effectiveness of new gear technology.

Federal funding for collaborative research has historically been constrained to 2 year projects, which severely limits the usefulness of the projects as well as the engagement of a broad number of industry participants. As a result, data from collaborative research projects is very rarely used in fisheries management for stock assessments, and new selective and efficient gear technology is rarely transferable in industry wide.²

The second national standard of the Magnuson-Stevens Fisheries Conservation and Management Act (M-S Act) mandates that fishery conservation and management be based on the best scientific information available (DOC 1976). Although advances in science and technology over the last thirty years have significantly improved scientists’ ability to evaluate and to predict the future performance of fishery resources (NRC 2002), current marine science is still riddled with uncertainty.

The M-S Act (2007) calls for the establishment of regionally based cooperative research and management programs to address the needs identified under the M-S Act, and to address any other marine resource laws enforced by the Secretary of Commerce (DOC 2007). Specific cooperative research project priorities were outlined, and are listed below:

- (1) Projects to collect data to improve, supplement, or enhance stock assessments, including the use of fishing vessels or acoustic or other marine technology;
- (2) Conservation engineering projects designed to reduce by-catch, including avoidance of post-release mortality, reduction of by-catch in high seas fisheries, and transfer of such fishing technologies to other nations;
- (3) Projects for the identification of habitat areas of particular concern and for ecosystem conservation (SEC. 318–319 16 U.S.C. 1867, DOC 2007).

The M-S Act (2007) specifies that these research priorities be addressed through cooperative research projects—where fishermen and scientists work together in all phases of the project, including the research question development, the project design, the performance of research, the analysis of the results and the dissemination of study findings.

It should be emphasized, that on this end of the research spectrum the scientists are onboard chartered fishing vessels, side by side with commercial fishermen. Commercial fishermen act as co-principle investigators, who exchange ideas and information with scientist partners. Collaborative research gives fishermen a direct voice in the science and management process as well as an intimate understanding of how and why the data collected will be used by fisheries managers. Much of the research aimed at addressing the priority needs of the M-S Act (2007), especially in New England, should be collaborative in nature (NEFMC 2009).

Wiersma (2011) looked at the preferences of commercial fishermen to supply collaborative research to determine what factors motivate New England commercial fishermen to participate, as co-principal investigators, in the three types of priority collaborative research specified in the M-S Act of 2007 (biology and ecosystem projects, stock assessment research, and gear technology projects). The major finding of this research is that different commercial fishermen have different preferences for the types of collaborative research executed aboard their vessel. In general, fishermen prefer stock assessment and monitoring projects over both gear conservation and biology/ecosystem/habitat studies—and would be willing to accept less money to participate on their preferred research project.

²The most notable exception to this is the “ruhe trawl”, also known as the “eliminator trawl”, which allows fishermen to target haddock and avoid cod based on a unique net design that takes into account the behavior of captured fish. If utilizing this technology, fishermen are allowed to fish with a different discard rate than if utilizing other gear, and are allowed exemptions to previously closed fisheries. More investment in transferable gear technology like this will be a critical part of sustaining a healthy bio-economic ecosystem moving forward.

Therefore, the efficiency and cost effectiveness of expanded cooperative research programs may be improved if policy makers utilize knowledge of fishermen's priority for research, and take into account their willingness to trade in-kind donations to complete the type of research that they feel is valuable. Aligning fishermen's preferences for research with a dedicated pool of money for collaborative research provides a valuable tool that can subsidize and augment traditional scientific data to develop better stock assessment models with a greater accuracy of prediction of annual maximum allowable catch.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. EDWARD MARKEY TO
DR. JOSHUA B. WIERSMA

Annual Catch Clearinghouse

Question 1. You note in your written testimony that the non-transparent market for buying, selling and trading annual catch entitlements (ACE) has resulted in a marketplace with no central clearinghouse that fishermen can go to in order to gather information about ACE prices or to lease, sell or trade ACE. Is a clearinghouse something the fishing industry can develop on its own or does it require regulation or legislative changes?

Answer. The current regulations for sectors under Amendment 16 say that the Federal government allocates ACE to sectors, and that accountability measures are to prevent overharvest of ACE by sector groups. Therefore, the government only regulates and records trading between sectors. However, on the ground level, the fishery operates as an individual transferable quota system. Individual fishermen fish or trade their "individual allocations", which are equal to the amount of ACE and individual brings into the sector.

The sector manager really operates as a broker for ACE transactions both within sector and between sectors, and therefore needs access to real time information about ACE listings and prices. Currently, information about ACE listings and prices is gathered through e-mail chains between sector managers. But, this information is often outdated, the delivery is inconsistent, and it is insensitive to marginal changes in demand or supply.

A central clearinghouse where sectors could post how much ACE they have available and negotiate price through a "bid"/"ask" trading platform would greatly reduce inefficiency inherent in the current market place for ACE transactions and result in greater utilization of sector ACE. The reason that this type of trading platform is unlikely to develop via private sources is because sectors aren't technically considered a limited access privilege program under Amendment 16. Therefore, fishermen can't buy and sell ACE on their own. They have to act through the Sector manager.

The National Marine Fisheries Service could develop a type of ACE trading clearing house that is driven by fishermen, but operated by sector managers. I think this would improve economic efficiency in the fishery, and provide a valuable source of information regarding the shadow value of the resource that can be used in fishery forecast models.

Electronic Vessel Trip Reports

Question 2. In your written testimony you discuss the development of electronic vessel trip reports (E-VTRs). What are the benefits of using electronic reporting and what support is needed to expand the use of this type of reporting?"

Answer. As I testified, Electronic Vessel Trip Reports (VTRs) are replacing paper VTRs, and fishermen are starting to use real time, wireless applications at sea to document by-catch hot spots. In New Hampshire, about half of our fishermen now use E-VTR, and we have entered into a pilot project with the Gulf of Maine Research Institute to test a by-catch reporting hot spot tool for harbor porpoise sightings. E-VTR has advantages over traditional paper VTR in regards to the efficiency of complying with the requirement to submit a VTR after every trip. It minimizes the risk that the VTR is not accounted for, and provides cost savings to fishermen because they save on paper and postage.

Investment in overhauling the Fleets hardware, like old computers and other electronics would significantly help the broad transition towards things like E-VTR. Computer hardware takes a beating at sea, and programs that could help recycle old electronics for new ones would help greatly. A good example is the Gulf of Maine Research institute who has provided a free new lap top to all fishermen who transition to E-VTR.

Real time VTR information also benefits management, marketing and value added purposes. Currently, managers, dealers and fishermen are disparate entities that don't fluidly communicate with one another. What is needed is an integrated and

real time network of data flow and communication that connects Trip IDs with dealer reported trip landings to government and sector records. The sustainability of today's fishing communities depends on the move towards this type of "ecosystem approach" to data collection, management and integration.

An integrated information management system would channel single-entry landings information in real-time within an information network of software services and devices that enable efficient reporting and compliance, improved dealer business management, more efficient ACL utilization, improved by-catch avoidance, and enhanced marketing capacity by facilitating locally branded, traceable and immediately available harvest inventory to community marketing efforts. The system should manage the flow of information efficiently so that data can be modified and used concurrently by multiple users without disrupting existing reporting protocols. This information network would form the infrastructure for a multiple interface with existing software platforms (*e.g.*, Sector or business management tools).

In addition, this real time "ecosystem approach" to data collection and management is a pre-requisite for a robust trading platform. First, we need "real time landings information" flowed continuously to the National Marine Fisheries Service and to the commercial fishing industry via sectors. This is a necessary condition for a successful ACE trading clearinghouse because in order to execute trades in real times, it is necessary for individuals to have knowledge of their remaining ACE allocations in real time. Currently, this information is 8 days lag. Legislative changes requiring more frequent, or preferably, real time dealer reporting would benefit the fishery and society in the following three ways:

- (1) it would create a more efficient ACE trading platform,
- (2) it would provide better information about the continuous and dynamic shadow value of the resource
- (3) it would benefit society through greater resource utilization, and the associated value added and multiplier effects of extra fish sales.

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